BEFORE THE AMERICAN ARBITRATION ASSOCIATION
North American Court Of Arbitration For Sport Panel

TRANSCRIPT OF PROCEEDINGS, May 14, 2007

UNITED STATES ANTI-DOPING AGENCY,
Claimant,
vs.
FLOYD LANDIS,
Respondent.

PURSUANT TO NOTICE, the above arbitration hearing was held at Pepperdine University, Department of Law, Malibu, California, May 14, 2007, commencing at 9:30 a.m. before Debra K. Resling, RMR, Certified Realtime Reporter and Notary Public.

AMERICAN ARBITRATION ASSOCIATION PANEL

MR. PATRICE BRUNET, 1010 De la Gauchetiere West, #2260, Montreal, Quebec H3B 2N2, Canada. E-Mail: Pbrunet@brunetavocats.com.

MR. RICHARD H. MC LAREN, Innovative Dispute Resolutions, Ltd., c/o McKenzie Lake Lawyers, LLP, 300 Dundas Street, London, Ontario N6B 1T6, Canada. E-mail: Mclaren@mckenzielake.com.

MR. CHRISTOPHER L. CAMPBELL, Chapman & Intrieri, 2236 Mariner Square Drive, Suite 300, Alameda, CA 94501, United States.
E-mail: Ccampbell@chapmanandintrieri.com.

APPEARANCES

MR. RICHARD R. YOUNG, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United

States Anti-Doping Agency.

MR. DANIEL J. DUNN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 1700 Lincoln Street, Suite 4100, Denver, Colorado 80203-4541, (303)866-0365, appeared on behalf of the United States Anti-Doping Agency.

MR. MATTHEW S. BARNETT, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MS. JENNIFER SLOAN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MR. TRAVIS T. TYGART, General Counsel, USADA, 2550 Tenderfoot Hill Street, Suite 200, Colorado Springs, Colorado 80906, appeared on behalf of the United States Anti-Doping Agency.

MR. MAURICE M. SUH, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333 South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. DANIEL L. WEISS, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333 South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. HOWARD L. JACOBS, Attorney at Law, from the Law Offices of Howard L. Jacobs, 4210 Lewis Road, Suite 5, Agoura Hills, California 91301, (818)442-0408, appeared on behalf of Floyd Landis.

MR. PAUL SCOTT, Chief Operating Officer, 2160 Century Park East, #2108, (310)203-0354, Los Angeles, California 90067, Agency for Cycling Ethics.

Participants behind Counsel Table: Caroline Hatton, Kathrin Weston, James Padilla; Floyd Landis, Amber Landis, Mr. and Mrs. Paul Landis, William Geoghegan, Arnie Baker, Michael Henson, Brent Kay, Todd Thompson.

Panel Participants: Dr. Francesco Botré, Andreas Zagklis.

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(Commencing Monday, May 14, 2007, at 9:30 a.m.)

MR. BRUNET: Good morning, everyone.

My name is Patrice Brunet. I'm the chair of this Panel today. I'd like to introduce my colleagues: To my right, Christopher Campbell; and to my left, Richard McLaren.

First of all, I'd like to remind the parties and the members of the audience that you have to turn off your cell phones and any electronic devices that you have. If you have personal recording devices, and they're not intrusive, they are permitted.

Cameras are restricted to the cameras that are permitted on this Panel's orders, so if you have a personal camera in the room, and you don't have that authorization, then you're not permitted to use it.

This is the first day of the arbitration hearing in the case of the United States Anti-Doping Agency and Mr. Floyd Landis.

Appearances have not been entered on behalf of the Union Cycliste Internationale, UCI, nor the World Anti-Doping Agency.

As you know, this arbitration has been ordered by this Panel to be public at the request of the athlete, and that's under Section Part 4 of the AAA Supplementary Procedures for the Arbitration of Olympic Sports Disputes.

Perhaps we could start with appearances from both parties. I'd like to start with Mr. Suh, since you're already up. Go ahead.

MR. SUH: Good morning.

Maurice Suh, Gibson, Dunn & Crutcher, appearing on behalf of Floyd Landis, who's personally present. With me here at counsel table is Howard Jacobs, Daniel Weiss, and Paul Scott. Thank you.

MR. BRUNET: Thank you, Mr. Suh.

MR. YOUNG: Richard Young, Holmes Roberts & Owen, representing USADA. With me at counsel table are Matthew Barnett, and Dan Dunn, and also with us is Jennifer Sloan.

MR. BRUNET: Thank you.

As you know, we have decided that there will be -- each party will have the opportunity to make a brief 20-minute opening statement. I will be the timekeeper, in this

case, and when you see my two fingers held up, it means you have two minutes to go.

So, let's begin with USADA.

MR. SUH: Mr. Chair.

MR. BRUNET: Yes, Mr. Suh.

MR. SUH: I think there's one procedural issue that we want to address before we begin. And that is the ruling on the motion to strike, because it has a direct bearing on what statements can be made or should be made during the course of opening statements.

Of course, it's our position that comments during the opening statement of USADA comply with Procedural Order Number 2, and perhaps you could give us some direction on that issue. We certainly don't want to have reference to evidence that shouldn't come in, but if it is somehow going to be talked about in opening --

MR. BRUNET: Mr. Young, my understanding of the motion to strike and the Panel's order as relates to this testimony and entering that into evidence does not apply to the opening statements. And as you know, this motion to strike is still under review by this

Panel.

MR. SUH: So just to be clear, is it that they can possibly refer to evidence that would -- might not ultimately be admissible in the trial in the opening statement?

MR. BRUNET: That's correct.

MR. SUH: Okay.

MR. CAMPBELL: It's my understanding that the Procedural Order said it couldn't be used as evidence, and so I would think that it wouldn't be used. But the issue is, whatever statements are used are, in fact, covered by the Procedural Order Number 2. It seems to me that you need to raise the objections if you hear it in relationship to that -- that order.

MR. SUH: We will do so. Thank you.

MR. YOUNG: May I have a clarification, so we don't end up -- so I don't end up getting interrupted in my opening?

MR. BRUNET: Yes, Mr. Young.

MR. YOUNG: We are planning on going forward with the opening on the basis that there is no ruling on the motion to strike. If you look at the PowerPoint slides that talk about the controls, for example, we have taken out the reference to the three out of four criteria because that was one of the issues; but we're certainly going to refer to the UCLA and Cologne studies, because, until we hear otherwise from the Panel, we're expecting those to come in as evidence.

I'd rather get that resolved rather than get interrupted as I'm trying to use my 20 minutes.

MR. BRUNET: Opening statements are opening statements. They're not admission into evidence, and that's an issue that can be resolved later, Mr. Suh.

MR. SUH: All right. But we shall make objections as we go through, just to preserve the record.

MR. BRUNET: Let's just get going with the opening statements and be uninterrupted for opening statements, and then, afterward, we can resolve those issues.

MR. SUH: Just to make -- to keep the record clear, would the Panel permit us to make objections at the close of their opening statement, just to be clear on what parts of the opening statement are in violation of Procedural

Order Number 2?

MR. BRUNET: Perhaps at the end of the opening statements, you could have a discussion with the Panel, in our chambers, if you want to address that.

MR. CAMPBELL: How about we can do an objection at the end? You give us the objections, and then we can talk about it.

MR. SUH: Sure. We'll -- we'll register our objections at the end of the opening. Thank you.

MR. BRUNET: Just, we're very pressed for time here. Just so that we bear in mind the time restrictions at the end.
Mr. Young.

MR. YOUNG: Members of the Panel, Dr. Botré. Despite all the attention that this case has received, there's nothing particularly unique about the issues that this Panel has to decide. This is only one of many dozens of cases where an athlete with a high T/E ratio has been confirmed positive by the use of isotope ratio mass spectrometry, IRMS.

The first laboratory data or analytical finding was based on the difference between a downstream metabolized testosterone which could be affected by outside testosterone use, and an upstream endogenous reference compound that would not be affected by testosterone use, that was 5-alpha diol and pdiol.

In Respondent's sample, that difference was more than 6 delta/delta units.

In relation to these IRMS results, the Panel will be asked to answer two questions: First, does this difference meet the criteria for a positive test. Second, are these analytical results reliable.

So -- I think I'm having trouble with --

This is what is positivity criteria for reporting adverse analytical findings.

Under the World Anti-Doping Code, which UCI and the rest of the Olympic movement has accepted, when WADA established this criteria, then laboratories that followed this criteria are presumed to have conducted their work properly.

We could spend a lot of time talking about whether that three delta-unit criteria ought to be four delta units, or whether some laboratories used to use or still use four delta units, but that doesn't make any difference in this case because the difference is more than six delta units.

Let me focus, then, on the value measured for the metabolite language. Because of the S in parens, a significant difference in only one metabolite endogenous reference compound combination is required for a positive test.

USADA will call Dr. Christiane Ayotte, the director of the Montreal laboratory, who was on the WASA laboratory committee when this criteria was drafted. She was the principal draftsperson of the criteria, and she will tell you that the correct interpretation of this criteria is that only a single metabolite endogenous reference compound combination is required.

USADA will call as its first witness, Dr. Cedric Shackleton, who's recognized worldwide as an expert in steroid metabolism and has published more than 250 articles on the subject.

He will tell you that he would not necessarily expect these combinations of metabolites and endogenous reference compounds to go down and up together. He'll also explain that there's no natural explanation, nothing that isn't a prohibited substance that you can take, that would cause your delta/delta value to be above six.

Dr. Shackleton's testimony is supported by a number of studies including two recent studies. One is a recent study by UCLA. In this case, on the left is Respondent's 5-alpha and 5-beta results six hours -- when he provided his urine six hours after he started Stage 17.

On the right are the results of a UCLA volunteer who was administered testosterone by injection. And what you see is 5-alpha and 5-beta do not go up and down together and that, in this particular volunteer, the 5-alpha stayed much longer in a pattern very similar to Mr. Landis' sample.

These are results of a study from the Cologne laboratory. Again, the point is, these are the four metabolites that are measured

by the Paris laboratory. As you can see from this study, the 5-alpha diol responds much more quickly to, in this case, the use of testosterone gel. It is positive higher, and it is positive longer.

Still on IRMS, let me go to the second question before the Panel. And that is, are the Paris laboratory's IRMS results reliable?

USADA's second witness will be Dr. Tom Brenna of Cornell University. Dr. Brenna is one of the world's experts in the area of IRMS. He's also used IRMS to analyze steroids. He will tell you that the Paris laboratory's results are reliable.

We have a lot of potential witnesses scheduled. Time permitting, you're going to hear that conclusion corroborated by the directors of Montreal, Cologne, UCLA, Olympic Laboratories, and by Dr. Rodrigo Aguilera.

Let me give you a brief introduction to the controls that were run simultaneously with Respondent's sample. The purpose of the controls is to make sure that the IRMS instrument is working correctly when the sample

is being measured.

First -- and this -- I put this up because it's just a useful exhibit for you to have in your books. It's the injection sequence, and it's the same for Respondent's A and B Samples.

It shows that they did three stability injections to check the machine; then they did three mix cal, that's mix cal IRMS injections, to check precision; and then they did a mix cal acetate; and then they did three fractions, each with a blank urine and with Respondent's urine, and then they did the mix cal acetate again.

These are the results for the mix cal IRMS. What mix cal IRMS is it's a solution of alkanes. There's four of them. And the reason that you run them is you run them three times in a row and see what kind of precision you get amongst the three times that you run it.

In this case, the precision was excellent. To use Mr. Suh's analogy from our February discovery hearing, what this shows you is that the instrument, the rifle, is shooting in a tight group. The next control is the mix

cal acetate. This is a solution of four known steroids. Each of these steroids is taken to an outside reference lab and measured by that outside reference lab, and then the instrument is checked against that outside reference laboratory's measurement.

In this case, we're talking about 5-alpha androstanol, and this is the measurement plus or minus 3 percent by the reference laboratory. And this is the result for that 5-alpha androstanol when Respondent's A and B

Samples were measured.

It shows you that the instrument is operating accurately; it shows that you there's no pressure problem; that there's no maintenance problem, and, to continue the analogy, it shows you that not only do you have a tight bullet pattern, but you have a tight bullet pattern right in the middle of the bull's-eye.

The third thing that they measured as a control is the blank urine. The blank urine is a live urine; it's not a chemical solution. And the analogy there, again, the results on that A and B Sample, and this is the third Fraction, were very close to what the

original predicted value was. And to continue the analogy, does not only this instrument hit the bull's-eye indoors; it hits the bull's-eye outdoors in the wind.

The IRMS results from Respondent's Stage 17 Sample were the basis of the Paris laboratory's adverse analytical finding in this case. The Panel could base its decision solely on those IRMS results standing alone; however, in this case, the Panel has multiple layers of corroborating evidence.

One layer of corroborating evidence were the results that were obtained when the Paris laboratory's electronic data files were reprocessed. Unable to refute this control data, Respondent demanded that the Stage 17 results be reprocessed on the newer MassLynx software. That was the basis, as you remember, Respondent's outdated software argument.

He bet the house on the hopes that he would be able to cause this positive result to turn negative, if he were just allowed to reprocess the electronic data files all the ways that he wanted them reprocessed.

Respondent lost that bet. The A and

B Samples were both more positive using the MassLynx software than they were using the original software. In addition to reprocessing the data on the MassLynx software, the data was reprocessed three different ways using the original software.

Again, no matter how the data was reprocessed, including a couple of ways that were requested by Respondent's expert that actually made no sense, the results were still positive; in fact, on reprocessing, Respondent went 8 for 8 positive.

On the issue of manual integration for peaks, I think Dr. Botré correctly assessed that situation when he confirmed that manual integration improves the quality of the signal; and therefore, the reliability of the results.

Dr. Brenna agrees.

The next layer of corroborating evidence is Respondent's T/E ratio. Respondent's T/E ratio was 11-to-1. It was very consistent between the A and B confirmation results. An 11-to-1 T/E ratio is way outside the range of normal.

Respondent can't claim that he's one

of those rare individuals who has a naturally elevated T/E ratio that's always high. This is a longitudinal profile of Respondent's test results.

Dr. Geyer, the deputy director of the Cologne laboratory and an expert in steroid profiling, will tell you that you don't go from a historical steroid profile of less to two, peak up, and then go back to less to two again unless there's some sort of manipulation. We'd say this is strong evidence of manipulation.

One important thing to note is that it's not USADA's burden to prove that testosterone would have helped Respondent in his Stage 17 comeback or, frankly, at any time during the Tour.

Under the World Code and UCI rules, proof of doping is the presence of a prohibited substance in Respondent's urine. We also know from UCI that it's not unheard of for cyclists to use testosterone and other anabolics. In fact, Joe Papp will tell you how and why he used testosterone during his cycling career.

The further analysis of Respondent's samples that took place on -- starting on April

16th is the final layer of corroborating evidence that supports the Stage 17 positive test. We know from the studies and, for example, from the Hartman case, that IRMS can detect doping even when the athlete has a T/E ratio lower than four.

Although Respondent was able to keep his T/E ratio below four up until the 17th Stage, the further analysis of his other seven Tour B samples, which took place in April, showed that four out of those seven samples contained evidence of exogenous testosterone use. Those further analysis results are also reliable.

All of the same controls were run at the time those B Samples were analyzed. It's also important to note that in April of 2007, when these B Samples were analyzed using IRMS, the laboratory used a second IsoPrime IRMS instrument that had the MassLynx software that Respondent has said is so reliable.

Let me conclude by addressing the Paris laboratory's ISO accreditation particularly as it result- -- as it relates to the IRMS method and the issue of bottle chain of

custody.

At the end of the day, Respondent is asking the Panel to reject the laboratory's results in this case because of what he claims is the laboratory's flawed methodology; however, under the scheme of the World Anti-Doping Code, ISO has already done the job of evaluating the Paris laboratory's methods. The Panel should not try to put itself in ISO's shoes.

Here's what ISO said in its audit report after inspecting the Paris laboratory five months before Respondent's sample was analyzed. This is their general comment on what they were going to do.

This particular piece of the report is important because it shows that they specifically reviewed the Paris laboratory's IRMS method.

This part of the report is important because it says, and this is the issue in this case, is whether Paris laboratory complied with international standard for laboratories, the technical document on IRMS and T/E, and the technical document on laboratory chain of custody, that they paid -- the ISO inspector paid particular attention to conformity with these three documents.

Their conclusion, with respect to chain of custody, was that chain of custody was conducted successfully and was considered very satisfactory.

Their conclusion with respect to the IRMS method was that it was well under control with maximum analytical precautions taken by the section staff. Their summary was that LNDD had unquestionably had the capacity of implementing good efficiency in the methods subject to review, which included the IRMS method.

We're looking forward to presenting our evidence in this case.

Thank you.

MR. BRUNET: Thank you, Mr. Young.

Mr. Suh and Mr. Jacobs, did you want to comment before I make any statements?

MR. SUH: Yes, Mr. Jacobs will handle that.

MR. JACOBS: Thank you.

In response to the Chair's request, having reviewed the slides that were provided, the objections are as follows:

The fifth slide, which references a

UCLA study is, as we pointed out in our motion to strike, directly in violation of the Procedural Order Number 2. It also, importantly, is an incompleted study and is a non-peer-reviewed study, and I would just refer the Panel to USADA versus Speih decision in 2002 -- that's S-P-E-I-H -- where the Panel there, and I'll quote, because it's so similar, said: "Dr. Catlin testified about a study he had recently completed; however, since it has not been subject to peer review and has not been finalized, the Panel did not find it to be credible evidence at this time."

MR. CAMPBELL: Howard, is that this?

MR. JACOBS: It's -- it's -- yes, it's the right-hand side of the fifth slide that says UCLA subject.

MR. CAMPBELL: Okay.

MR. JACOBS: We have a letter from Dr. Catlin that says that study's not complete and also, as pointed out in our motion to strike, this is a cherry-picked single result that bears no relation at all to anything that could possibly happen in the middle of the Tour

de France.

MR. CAMPBELL: Could you hold a second?

MR. BRUNET: The Panel has conferred

on -- on this point, and Mr. Jacobs, you're right: that the Panel has ordered previously that any documents that were requested as the claimant's and were responded as not being available or not to be made available, that there could not be any testimony or any verbal testimony on it or any evidence presented related to it.

MR. CAMPBELL: I think, Howard, the key on this one, it wasn't a complete study, so we agreed.

MR. JACOBS: Thank you.

The only other slide, and it's somewhat similar, would be the very next slide, slide 6, which is the Cologne study.

While this does appear from what's been produced, although there's no way to verify that it is a completed study, it certainly has not been peer reviewed; hence, the quotation from the Speih case that I've just referred the Panel to would be equally applicable here.

MR. CAMPBELL: I have a question. Mr. Young, this Cologne study, when did USADA get this study?

MR. YOUNG: I -- I'd have to check my records on that, but certainly reasonably late in the game. I mean, certainly sometime in 2007, but, I mean, I could give you the exact date.

MR. CAMPBELL: It would be after February 22nd, 2007?

MR. YOUNG: I wouldn't want to tell you and then be wrong. I could -- I could figure that out.

MR. CAMPBELL: Is this Cologne study, is this peer reviewed? Is this a completed study?

MR. YOUNG: There are two pieces of what Cologne did. The first is a larger study which was presented at the Cologne workshop in Germany.

MR. CAMPBELL: Well, I --

MR. YOUNG: The second is a one-subject continuation of that study, and I don't know whether that has been presented anywhere or not. It is completed as to -- the

subject P3, I think, is the continuation; subject P9 was part of the original study.

MR. CAMPBELL: This slide, which -- which part does it come from?

MR. YOUNG: I think that particular one is P3. It is the further continuation of the first study.

MR. BRUNET: I see from this slide that it refers to volunteer Person 3 --

MR. YOUNG: Yes.

MR. BRUNET: -- is my understanding.

MR. YOUNG: Yes, that's my understanding as well. And if you look at our exhibits, P9 is part of the original study. This is the continuation.

MR. JACOBS: One other point of clarification, having gone back and -- and looked at the exhibits, it appears that Exhibit 34 A is a part of Exhibit 34. And if you look at Exhibit 34, it says it's a research progress -- project. It says it's a progress report, so I think that answers our question as to whether it's a completed report or not. It's not. It's not a completed study.

MR. YOUNG: We will, obviously,

offer Dr. Schänzer to tell you how that's been presented and how it's been done.

MR. JACOBS: But that's the whole point. I mean, we need to know before Dr. Schänzer testifies if he's going to be allowed to testify about an incomplete non-peer-reviewed project that he's working on. That's why we're objecting to it.

MR. BRUNET: Well, we have the motion in front of us, and we understand that this particular witness is not scheduled to testify today.

MR. YOUNG: He is not.

MR. BRUNET: So, thank you.

Any further comments?

MR. JACOBS: No, thank you.

MR. CAMPBELL: I have another question for Richard.

Richard, you showed -- excuse me.

Mr. Young, you showed a longitudinal study of the steroid profile?

MR. YOUNG: That's right.

MR. CAMPBELL: And how -- over what period of time does that -- does that go from?

MR. YOUNG: It goes way back to

2002.

MR. CAMPBELL: Is that similar to the profile that you produced in some other cases; for example, the Montgomery case?

MR. YOUNG: Yes. Except in -- in this particular case, more backup documentation has been requested and has been provided.

MR. CAMPBELL: Is that longitudinal study, is that part of an exhibit?

MR. YOUNG: Yes.

MR. CAMPBELL: Is it? Which -- which exhibit is it in?

MR. YOUNG: Okay. Let me check real quick.

MR. BRUNET: You can let us know that later.

MR. YOUNG: 38.

MR. CAMPBELL: Thank you.

MR. BRUNET: Mr. Suh, Mr. Jacobs, you can make your opening statement.

MR. SUH: Good morning to the Panel. Good morning to everybody here that has joined us today at the start of this case.

Make no mistake about it, this case is an utter disaster: a disaster of the

anti-doping movement. It's said that a disaster doesn't result from one or two things going wrong; it results from many things going wrong all at the same time, and that -- that is this case.

During this arbitration you're going to hear about how the intersection of LNDD's and USADA's incompetence and misrepresentations about the data have conspired to result in a false positive. You're also going to hear that, once found out, they've done everything they can to hide it.

In Mr. Young's opening statement, he started out by saying, assuming that the data is reliable, saying that there was no natural explanation for the results. That's never been our case. Our case has never been that there's been some sort of natural explanation for these results, aside from the fact that LNDD performed these tests wrong.

We're going to hear a lot about science and a lot about the testing during the course of this trial, but let's put it in simple terms.

In order to believe USADA's case,

you must believe the following: Number 1, Floyd, knowing that he would be tested while in the lead or attempting to regain the lead in the Tour, took testosterone, a drug that he knew that does not have a beneficial effect, during a race like the Tour in an amount too small to raise his testosterone level above that of the average American male.

That -- that's one of the things that -- which is a misconception in this case is that his total testosterone was high: It wasn't; it was average. So if he had took it during the Tour, he would have taken an amount that would not have raised his -- his testosterone above that of the average American male. That once in his body, it was metabolized in a way that is contrary to the known science about testosterone metabolism.

And then, in four out of the five tests that are alleged to be positive, his screening tests were absolutely normal. Four out of the five, his screening tests were normal.

Then, in his five confirmation tests, the values vary in a way, again, contrary

to the known signs about testosterone critically; that when the electronic data files from Stage 17 were reprocessed, the results were not reproducible.

You heard Mr. Young talk a little bit about the -- the reprocessing, but what he doesn't show you is other values, which you're going to see. But the reality is, is that the results were not reproducible, and we'll explain why they were not reproducible. But that's not the science.

Most importantly, and what's at the heart of this case, is that all of the ISL violations that we're going to show you, that, somehow -- that they utterly did not matter at all.

It's up to you, the arbitrators in this case, to reject this theory; the theory that only works if you assume, first, that Floyd Landis is guilty, and then you back into the results and cherry-pick data here and there in order to support that conclusion. That's not science.

And, in fact, that leads me to our first series of points. That is not the burden of proof; that's not the standard of proof.

Noticeably absent from USADA's presentation is exactly what it is they have to prove and how this trial should proceed. Number 1, USADA has a burden of establishing that an anti-doping rule violation has occurred. Now, they carry the presumption that the laboratory's conclusions were accurate.

Second, Floyd Landis can rebut this presumption by establishing that a departure from the international standard occurred. This is proven by a mere balance of probability.

Third, once that occurs, the burden shifts back. USADA then has the burden to establish that the departure did not cause the adverse analytical finding. That's their burden. And in this analysis, this is a critical point. It's a critical point. And to illustrate this point, I'd like to spend one minute talking about the Landaluce case.

A lot of the people take the Landaluce case for the proposition that the same analyst can't analyze the Sample A and the Sample B. What the Landaluce case also talks about is, more importantly, that, really, no matter how seemingly inconsequential or even trivial an ISL violation, it is the anti-doping agency organization's duty, under the rules, to prove that that violation did not cause the adverse analytical finding. And, in that case, both the CAS Panel and the Panel below had determined that the anti-doping organization could not meet that burden. These are their rules. We ask you to follow those rules.

In talking about the standard of proof, what is it? USADA must present evidence of a doping violation to the comfortable satisfaction of the hearing body, bearing in mind the seriousness of the allegation which is made.

The more serious that allegation, the less likely it is that the alleged event occurred; and, hence, the stronger the evidence required before the occurrence of the event is demonstrated to be more probable than not. The gravity of these allegations and the related probability or improbability of their occurrence become, in effect, part and parcel of the circumstances which must be weighed in deciding whether, on balance, they are true. It's a

quote from the Tim Montgomery case.

We have to account for the

seriousness of the allegations in the context of this case. With all deference, this case is not like other cases that USADA does. It's not like other cases that LNDD has analyzed. These allegations deal with the greatest race in cycling: the Tour de France. A race with over a 100-year history. It may be the greatest race in the sport. And just as it is important to protect that race, it's important to protect the rights of the athlete who wins that race.

Never before has a cyclist who has won the Tour been accused of a doping violation in conjunction with winning. This is a historic case. It has to be done right.

Secondly, no case has before looked so comprehensively at the pattern and practice of laboratory errors. Again, this is a case that has to be done right.

During this arbitration, we're going to ask you to apply a very high standard as close to beyond a reasonable doubt as possible. And again, that as close to beyond a reasonable doubt as possible applies to their burden to

prove that the adverse analytical finding was not caused by the ISL violations that I'm going to talk about now.

During this arbitration, you will hear evidence on at least eight issues that constitute violations of the ISL and good lab practices. However, for purposes of this opening, we're going to focus on three issues. These issues are not technical. They're not procedural. They go directly to the identification and quantification of testosterone and epitestosterone in this case.

We're going to talk about things like -- and explore things like the Landaluce error, the same technician running A and B. We're going to explore those. But the reality is, the ones that we really want to focus on are the ones that directly deal with whether or not an adverse analytical finding existed in this case. Did they properly identify testosterone and epitestosterone? And then, once they did, did they accurately quantify it?

Let's turn to the first issue: poor chromatography. It is a bedrock principle in both these tests, GC/MS and IRMS, that you need

good chromatograms. What does that mean? Those chromatograms should avoid interference in the detection of prohibited substances or their metabolites by compounds of the sample matrix.

It sounds complicated. It actually is not. Peaks are clear and clean, that are peaks that don't have coelutions, that have good separation, that don't have overlapping markers and that the baseline is clear and resolved and not sloping.

Why is that important? It's important because, without good peak resolution, without a clear chromatogram, you are not accurately quantifying your results. So when Mr. Young points out all of these results that are up, we'll show you the reasons why those results turn out this way: Because their chromatograms, in the first instance, were no good. And the fact that they were no good is a violation of the ISL. It is so important a principle that the chromatograms be good, that it's written right into it.

We're going to look at a lot of different chromatograms during this case. Chromatography -- not made part of USADA's

opening statement. They don't want you to hear about that. They don't want you to hear about the data underlying their conclusions that he's guilty, so let's -- let's look at this.

This is a -- a chromatogram from Stage 17 Sample B of the IRMS test. Look at that baseline. It's a downward-sloping baseline. And then when you look at the peaks of interest, right there, the peaks of interest, there's not good separation, and there's co-elution. Violation of the ISL. Violation of the ISL.

And it's now their job to show to you, to prove to you, as close to beyond a reasonable doubt as possible, that that did not affect the adverse analytical finding.

Let's turn to the next one. Stage 11. This is one of those retest samples. This is the particularly interesting because, in this test, the screening test, that screening test was negative. It was negative. And look at this chromatogram: a downward-sloping baseline and, again, poor peak separation. Violation of the ISL. Proof to us now -- not to us, but to you -- proof to you that this did not cause the

adverse analytical finding.

GC/MS is no better. Again, that's the peak at the testosterone. Look at that left shoulder. That's a coeluting shoulder. That's peak overlap. That's a violation of the ISL right there. And in their brief, they said, oh, no, no, no; the B Sample was much better. Let me show you the B Sample. That's much better? How is that much better?

During the course of this trial, you're going to see -- we will show you -- through testimony why this is a problem. But what this means is you don't get good results. It's published in the papers of their experts.

It's published in the papers of our experts. No one's going to argue that good chromatography is not a critical part of good lab work and accurate results.

Second, manual processing of data. What is manual processing of data? Manual processing of data is the process by which technicians use their own judgment to pick where the start and end of those important peaks begin and end. And why is that important? Because when you pick the start and end of those peaks,

you pick the end result. That's what you do. That is what it means.

You hear a lot of technical terms. You're going to hear them. You're going to hear manual subtraction; you're going to hear about background subtraction. All it is, it's trying to resolve and accurately quantify what's in that peak.

You know what's interesting about this? Is that we asked them in their discovery, in the discovery of this case, we asked them: How do you do your subtraction? And the response: We do it automatically. The machine does it. Don't worry about it.

But you know what the truth is that we learned just before -- a week before this begins? They do it manually. They pick their own data, and we almost never knew. You know why we almost never knew? Because these guys -- these guys -- told us to the contrary.

It's so important that this is done right again. It's right in the ISL. Right in the ISL. It says, when you record for reporting processes, you have to write it down so that people know, so that you don't go through five

months of discovery, which practically bankrupt you, in order to prove that you're innocent.

ISL prohibits undocumented processing of data. And what is the result of that? We're going to show you the whole chart. They didn't show you the whole chart. But to illustrate this point, I will show you -- these are the original results right here. And here are the results that they got when they tried to reprocess it. Both done manually. They didn't do it one time. They didn't do it two times. They didn't do it three. They tried 20 times. This is as close as they could get.

Mr. -- Mr. Young, I've never actually been quoted during the course of opposing counsel's opening. I like it. But, you know, when you look at this, this is about an accuracy of a rifle.

Look at this. Look at just by example, the etiocholanolone, the E minus 11-K.

It goes from minus 2 to minus .35. What is that? This is science? This is an embarrassment. It's an embarrassment that you would be able to say that this is okay.

And, you know what? Maybe it

wouldn't be so embarrassing if you tried once or twice, but they tried -- this is better than 20 times. This is the best they could do after 20 times. And the results again, underlying this, is poor chromatography. That is what was in the EDS. This is the best we could get with that full chromatography.

Let's turn to the third point: selected ion monitoring. What is selected ion monitoring? It's a requirement that LNDD looks at and analyzes three diagnostic ions when identifying testosterone or epitestosterone. Without doing so on the confirmation method, you can't be sure that what you're looking at is testosterone -- I'll call it T, and epitestosterone, E.

You can't be sure. Why? Because three diagnostic ions -- these three diagnostics are three of 10 diagnostic ions associated with testosterone and epitestosterone. So when you go to the confirmation method, the ISL requires you look at three. Why? Because they want you to be sure you're looking at the right substance. And it's so important, it's written right in there. The ISL requires actual

analysis of three ions.

Well, let's look. Let's look at what, actually, they did. This is the confirmation on the B. Ion 432.40, that's one ion. That's one peak. They're claiming that that peak, that tall one right there, 1936 is T; and they're claiming that little bitty one down there at 1858 -- that's the same one you saw before, by the way, but it's smaller. You can't see all the co-elution and violation of matrix interference on that one -- but that's E down there. And that's not the way the rule requires you do it.

Let's take a look at how you are supposed to do it. I understand that Dr. Catlin from UCLA is in the -- in the room here today. This is the way UCLA does it. They apply three ions. There they are right there. And not only that, you can see it on the chromatogram.

See those three peaks, one inside each other? You look at those peaks. That's how you know what you're looking at is testosterone. They didn't do it. They say they did it. We don't have any documents. There's nothing in the lab pack. How do they know? How do they know that when they have one diagnostic ion that what they're looking at is testosterone or epitestosterone? In particular epitestosterone, because it's so low? How do you know if you haven't followed your own rules?

We challenge, during the course of this arbitration, their army of experts to prove -- to prove as is their burden -- that Number 1, their chromatograms are good; Number 2, that they actually document their manual processing; Number 3, that they use proper confirmation techniques. They can't.

It's not just that, though. Oh, and sorry. They have to prove that none of these ISL violations caused the adverse analytical finding. These aren't the only ISL violations that we're going to cover.

We're going to cover these too. Number 1, violations of rules regarding chain of custody. Number 2, violations of rules regarding preparation of lab documents. Number 3, they went ahead and identified some nonexistent compounds just to throw in a few. Number 4, violation of rules regarding running quality controls. And Number 5, violations of

rules requiring reference collection standards.

All of these are critical. They're just as critical. And the burden is exactly the same. Any one of these is enough.

But we're -- we have never said that we're trying to get off in this case on a technicality, because Floyd is absolutely innocent. We're going to show that all of these actually had an impact -- an impact -- on the final results.

Why do they have the ISL, if you can violate it left and right? This lab, the LNDD, reports adverse analytical findings at better than three times the rate of average -- the average of the other WADA labs. Better than three times. During the course of this arbitration, ask yourself, is this lab three times more accurate? Is it three times better? Are there three times as many dopers in France, or is something else going on? Maybe all of these violations -- ISL violations do matter. Maybe those athletes didn't have the opportunity, as Mr. Landis has had, to prove their innocence.

I'd like to end with this very, very

important point. WADA's motto is to play true. From the beginning of this, we have heard from USADA that their duty, their job, is to enforce the rules upon Mr. Landis, that they're the guardians, the watchers. Well, who watches the watchers?

Here are the things that we've seen in this case. We've seen the false statements in discovery that you'll hear about, the destruction of evidence, the exclusion of the independent expert from parts of this, the exclusion of our expert from the retesting process.

We've seen discovery requests that were designed to chill Mr. Landis' First Amendment right to petition his elected officials. We've seen discovery requests, which have been designed to chill his right to raise money so that he could be here today to defend himself. We've seen discovery requests which even try to interfere with his ability to use the inter- -- Internet which, frankly, I've never understood.

They've always bragged. USADA always brags that they always win, that they win

every time. They're always right. Let's talk about right and wrong.

They're going to call a bunch of witnesses that are WADA lab directors. The head of WADA, Dick Pound, before he'd heard any evidence, before he knew what the case was about, announced publicly that Floyd's testosterone was so high, it was up to his eyeballs, and he should have been violating every virgin within 100 miles or he should have been, must have been, surprised that he didn't.

This is offensive on so many different levels. This isn't a joke. It's offensive on three I can think of right off the bat. First of all, it's offensive to his wife who's seated here in this courtroom today, who took a lot of pride in her husband's victory. It's offensive to his family. Secondly, it's offensive to the process. He didn't have any facts. And thirdly, it's offensive because it's simply not true. Floyd's testosterone was not higher than that of an average American male by their own flawed testing.

MR. BRUNET: I'm sorry, Mr. Suh. You're two minutes over. If you can just

conclude, please.

MR. SUH: -- yes, thank you. Thank you.

In the beginning of this, we defined fairness as being the application of the rules equally against USADA and LNDD as they are applied equally, or they're sought to be applied equally, against Mr. Landis. The rules that we would ask the Panel to apply are the ones that we've talked about today, for them to carry their burden, to meet their burden of proof. And if the Panel does this, we are confident that you will find Mr. Landis committed no doping violation.

Thank you.

MR. BRUNET: Thank you, Mr. Suh. We'll take a 15-minute recess. We'll be back in for evidence from USADA.

(Brief recess taken from 10:32 to 10:54 a.m.)

MR. BRUNET: Everyone be seated, please.

Welcome back. We'll resume the hearing.

Mr. Young, you might want to begin

by calling your first witness.

MR. YOUNG: Our first witness will be Dr. Cedric Shackleton. And, with the Panel's indulgence, given the number of binders, do you mind if I examine here from counsel table?

MR. BRUNET: I don't mind.

MR. YOUNG: Thank you.

MR. BRUNET: Dr. Shackleton, if you could take the stand, please.

DR. SHACKLETON: Good morning, ladies and gentlemen.

MR. BRUNET: Good morning, Dr. Shackleton.

Mr. Young, we'll have him sworn in.

WHEREUPON,

CEDRIC H.L. SHACKLETON,

the witness herein, having been first duly sworn to state the whole truth, testified on his oath as follows:

MR. BRUNET: Please proceed.

EXAMINATION

BY MR. YOUNG:

Q. Thank you.

Dr. Shackleton, what is your occupation?

A. I'm a senior researcher in endocrinology at Children's Hospital in Oakland Research Institute, and I'm also a professor at the University of Birmingham in the UK.

Q. And what does that mean you spend most of your time doing?

A. Steroid analysis.

Q. And for what kinds of purposes?

A. My career has been spent studying with steroid metabolism to see how it's possible to diagnose and find out the causes of rare genetic disorders that affect people's steroids.

Q. And when you do that, do you look at the kinds of steroid metabolites that you've heard talked about in opening like 5-alpha and 5-beta and androstenediol.

A. I do.

Q. Have you published in that area?

A. Yes. I've been published in this area for 40 years this year, and have, I think, in excess of 250 publications on the areas of steroid metabolism, many of which contain the compounds -- kind of compounds you have mentioned.

Q. Have you also published in the area

of the detection of steroids using IRMS?

A. Yes.

Q. Have you had any experience in the area of doping control?

A. Historically, yes. I think my lab back in England, in the early 1970s, was the first to actually find people guilty in Rome, the European games in 1974 and the Commonwealth games in 1975, and I think that that work is published also.

Q. Have you ever testified before?

A. Never.

Q. Let's talk about the documents that you've looked at in this case. Could -- could you briefly describe those to me?

A. Well, as far as I know, I have seen all the briefs, the pretrial briefs, the briefs with the additional information. I've seen the -- I've reviewed the data files, the lab data files, and all the paperwork to do that.

Q. Did you look, in particular, at the laboratory's documentation package with the Sample A and B results?

A. Yes.

Q. Could you briefly describe for our

benefit, and you can draw or use figures or whatever way is useful to you, how the principles of metabolism and how IRMS would help to identify exogenous steroid use?

A. So you want me to describe the principles of IRMS. Well, I don't want to get too technical, but 1.1 percent of carbon on this planet is Carbon 13, which means that the atom has an additional neutron to make it slightly heavier.

And in the atmosphere, of course, there's going to be the two varieties. There's going to be a Carbon-13 carbon dioxide, and there's going to a Carbon-12 carbon dioxide. And many plants, when they're fixing carbon to make carbohydrates, they discriminate to different levels against the Carbon 12 or the Carbon 13.

And, of course, if you think of the way we live, we eat vegetables, we eat meat; but of course, the meat, the animals, they eat, you know, grass, and we're this average Carbon 13 content of everything that we eat. There may be slight differences on our individual food preferences but, on the whole, we're an average.

Interestingly, when you make pharmaceutical testosterone, you use -- you'll always have to have -- you'll always have to have, to start with, a steroid chemical backbone.

And there are materials in many things. It used to be made from the Mexican yam. Now you get the steroid backbone from soy, and that is the thing that you change into pharmaceutical testosterone.

The interesting thing about soy is that that particular plant discriminates heavily against Carbon 13 carbon dioxide, and it has less -- it has less in it, its material, much less, than we do as an average of all the different things that we eat.

Q. Does that mean that this term that we've talked about, delta value, does that mean that its delta value would be more negative?

A. The delta value would be more negative in a soy product.

Q. Okay. So then what?

A. Well, the idea, the principle, about the IRMS, then, is you isolate designated analytes which can come from a drug such as testosterone. You isolate them. You separate them. You separate them by gas chromatography, and you combust the individual peaks to carbon dioxide, and you measure the Carbon 13 to Carbon 12 ratio, in the carbon dioxide formed by combustion of the individual peaks.

And if that level is lower than comparable steroids which we make ourselves all the time, but are not related to -- to necessary antigens, even, then you're suspicious that -- that you're dealing with exogenous testosterone made primarily from soy.

Q. So in the tests that the Paris laboratory runs, these compounds that are not affected by testosterone use, would that be the pdiol and the 11-ketoetio?

A. They would not be affected by testosterone use. They're on parallel pathways which can never meet.

Q. Okay. And the metabolites that could be affected by testosterone use are which ones that are measured by the Paris laboratory?

A. The four that are listed there: The 5-alpha androstanediol, the 5-beta androstanediol, androsterone and etiocholanolone. There are two pairs of 5-alpha and 5-beta compounds. I don't want to get into the chemistry, but they are.

Q. Let's take a step deeper into male steroid metabolism. And tell me something about the differences of how these different steroid metabolisms are produced or might be affected by testosterone or other drugs in the family of testosterone.

A. Well, steroid metabolism is -- I mean, it's an extremely complicated business, as you might -- and it's very difficult to summarize it easily. One of the things which is -- always has to be remembered is that we're all individual and that we have very distinct differences in the way that we metabolize things. The end result is that we're in -- we're still within, you know, a window of -- of normalcy, but we have different levels of different enzymes.

There are three enzymes involved in going from testosterone to 5-alpha androstanediol or 5-beta. Each of those three enzymes, you may have -- you may have at different levels than I have. And you may be a

5-beta producer. I may be -- maybe I'm a 5-alpha producer.

Now, it's not going to be a huge difference, but a measurable difference, you know, and so -- and that's just three enzymes. As you go as far as androsterone etiocholanolone, that's another one; that's four. So it's a long process from going to testosterone to these metabolites.

Secondly, these metabolites are not -- are not unique to testosterone. They have several origins. They are major metabolites of two different adrenal gland hormones, which has nothing to do with testing hormones, adrenal glands, which is an entirely different gland. But those precursors in the adrenal glands can contribute to these same four metabolites. So, you know, we've got multiple origins. We've got the possibilities -- we've got natural testosterone; we've got two adrenal compounds, which can give rise to these things; we have the possibility of exogenous vs. testosterone, and so it's -- and the variable amount of three or four metabolites and enzymes.

Q.   To make sure that I understand the

individual difference, does that mean that it's possible that if you and I took the same kind of testosterone, that you would be more likely, because of your metabolism, to favor the production of 5-alpha, and I might be more likely to favor the production of 5-beta?

A. Absolutely.

Q. Would it make a difference whether we took testosterone by gel or by an injection or by a pill?

A. From my knowledge of enzymes, it would -- it -- I mean, the three common forms are -- would be, like, through the skin, an injection or oral.

Through the skin has one -- the liver's the only one involved, really, when you're talking about either ingested -- ingested or injected. But once you're talking about the skin, skin has a 5-alpha reductase. 5-alpha reductase means -- that means an enzyme which does the 5-alpha reduction.

Q. And what does that mean? Does that mean --

A. Skin. I mean, you -- you could get conversion of testosterone within the skin

itself by 5-alpha reduction, but you couldn't get 5-beta; there's no 5-beta reductions.

Q. Does that mean that it's -- if you're talking about a skin administration, there would be a favoritism towards the production of the 5-alpha metabolite as opposed to the 5-beta metabolite?

A. It depends where you're looking.

I mean, I -- I wouldn't go as far as saying that, but the initial -- once you're under the skin, it's going to be 5-alpha reduced testosterone. It's not going to be 5-beta. But then all that stuff, then, goes off to the liver, you know, at some point, and then 5-beta comes in. I mean, if I'm trying to say this simply, but, there is one -- yes, there is -- a skin -- topical administration is going to result in some 5-alpha reduction, and not 5-beta.

Q. And what would the difference be if you were taking an oral testosterone pill, for example?

A. If you took an oral testosterone pill, you're -- this, once again, the term "you," if I was to hypothesize, I would think

that, with cream, you're more likely to get 5-alpha reductase. With a pill or -- or injected, you're more likely to get a pretty average mixture. And, in some people, it might be a little higher in one or the other.

Q. Are there prohibited substances in the testosterone family, either upstream precursors or downstream of testosterone, which would produce different metabolite results than testosterone itself?

A. Yes. I mean, for example,

dehydroepiandrosterone, DHEA, or androstenediol, all well-known steroids, they can be -- preferentially go to 5-alpha or 5-beta reduced steroids. And once again, we're back in the realms of a lot of individual variation.

Q. Take a look at a chart that you drew for us, and it's Exhibit 37.

It's the second page of that exhibit. It's the second page of that exhibit.

Well, we'll go ahead. Yeah, that's it. We just need to flip it right side up.

Could you explain this to us, Dr. Shackleton?

A. Yeah, I can. I must emphasize all

along that this kind kind of testimony, that when we draw these charts of all of these kinds of descriptions, we're heavily simplifying. I mean, and I hate to present you with really, you know, a more comprehensive -- well, here, for example, is just a metabolic chart of -- a simplified metabolic chart of testosterone. I mean, and it can be endogenous or exogenous, of course. So the first thing that's likely to happen to it in the body is, in fact, it gets -- it gets reduced. It means, it gets -- a hydrogen is actually added to it, and it can be in two different stereochemical positions, 5-alpha or 5-beta.

And this is where the whole crux, much of this testimony is around that thing. This is purely a thing, a molecule, which is very -- two molecules, very, very similar. They just have a hydrogen atom pointing in a different direction. And that's -- once that hydrogen has been added, then we have to do another modification. When we get down to the second modification, we get down to what -- our primary analytes, which are the androstanediols, and one is going to have the hydrogen in

particular configuration, and one in a different configuration, and that's the 5-alpha and the 5-beta.

After that, they can't be, themselves, changed. Our primary analytes can be changed to androsterone and etiocholanolone, going further downstream. So you can imagine that if there was an exogenous source with low carbon protein content, the compounds below it, on a chart like this, are going to have a lower-than-normal or reduced Carbon 13 content.

And then going right to the bottom of that chart, I've included two separate origins which are from the adrenal steroid, an entirely different gland, as I mentioned before, which are, themselves, contributed either through androstenediol, and DHEA are contributing to androsterone and etiocholanolone, and maybe even a slight bit -- one step backwards to the androstenediols.

Q. In terms of detecting exogenous use of testosterone, are the 5-alpha and 5-beta metabolites more sensitive or are the andro and etio? And I'm just talking about testosterone

itself.

A. Oh, the androstenediols. And this is sort of why I've highlighted them in this picture. Because, if you're looking downwards from the top, there's -- there's this two-stop process getting down to 5-beta androstanediol. It's 5eto DHT -- I don't want to explain that -- and the 5eto DHT goes to 5-beta androstanediol.

To get to etiocholanolone, you have one more kind of dilution, and it's going to be a less -- a less good analyte, in most cases, you know, if you're given testosterone. And the same thing if we were going down the left side of the chart, two-step processing is going to be the androstanediol, and a three-step to the androsterone. And then those bottom two are being fed from the bottom part of this chart, do you see what I mean? Further diluting them. So the androstanediols are the prime -- are the prime analytes for this kind of testing.

Q. And when you say the bottom two are being fed from the bottom of the chart, does that mean other sources?

A. That means other sources. These adrenal steroids are diluting -- diluting the

etiocholanolone and the androsterone.

Q. When a person takes testosterone, would you expect that their 5-alpha and 5-beta would drop at the same rate, and then go back up to normal at the same rate?

A. The most -- the most average -- excuse me -- the most average example would be that, depending on the dose size, they would both -- they would both drop pretty precipitously, both of them. And then, with time, after the dosing, and this is where the individual metabolism comes up. One is going to go up at a faster rate than the other, unless you happen to be this perfect person, you know, with exactly the same 5-alpha, 5-beta reductase activities, and they will follow themselves all the way.

But in most cases, I would expect that after maybe going down to an initial level, which is very similar for both of them, that -- that one would recover -- I mean, when I say recover, get back to normal at a -- at a faster rate than the other. But I wouldn't like to say which one it would be in a particular case.

Q. And if an athlete was mixing the

steroid products that he was taking, either testosterone and other precursors, could you see a difference in the pattern of the 5-alpha and the 5-beta?

A. You would see a difference, but then, you know, you would have to do it very carefully, calibrate an experiment to do that, yes.

Q. In your opinion, is there sound scientific justification for the identification of a use of a testosterone or other prohibited substance based on a significant difference in the single metabolites endogenous reference compound combination?

A. Yes.

Q. And that is because?

A. Because very much what we were talking about is except at a particular points in time, maybe shortly after, very shortly after an administration, there, these two things are not going to parallel, but one is going to have a lower, negative -- negativity than the other. And it doesn't matter which one it is, but I mean, you know, but one is, in my opinion.

Q. And sometimes they'd be the same,

and sometimes they'd be different?

A. Sometimes they'd be the same, and unless you know the particular individual involved and you have done longitudinal studies, it would be very difficult to predict which would be the one that would recover most, because this, as I say, goes back to our individual activity of our metabolizing enzymes.

Q. And could that individual affect that somewhat by taking different substances at different times?

A. It's a bit hypothetical, because -- I mean, the answer is yes they could. I mean, I know that instinctively that, yes, they could. But then, there'd be a lot of experimentations to actually prove which compound you could do it with. It's not something you want to do in a hurry as an experiment.

Q. As I've gone through the studies, I've seen that it's not unusual for a subject to start out with a difference between, say, their pdiol and their 5-alpha and 5-beta, one, two, and sometimes even more delta/delta units. Why would that be?

A. Yeah. This is a very common

feature, and everybody that's been in this field has noticed it from the get-go. And I think I -- well, I started off my presentation saying that plants were -- were discriminating against carbon dioxide, you know, which is -- has got a Carbon 13 mol- -- a Carbon 13 atom in it.

Well, to some degree, our enzyme analyte mechanisms are likely to do that too, only in a tiny, tiny little bit. And we're only talking here about, you know, one or two parts per thousand, really, really small. But an enzyme says, well, I prefer -- I actually prefer the testosterone with the C-12, rather than the C-13, and maybe just discriminate it slightly against.

Q. Would that kind of enzyme discrimination within our own bodies explain a delta/delta difference of a minus 5 or a minus 6?

A. Well, that would be impossible. These would be the slightest little preference.

Q. We heard in Respondent's opening that these delta/delta values for Mr. Landis were inconsistent about what we know about steroid metabolism. I think you probably know

about as much about steroid metabolism as anybody. Is that your view?

A. To me, these look totally consistent with what I know about steroid metabolism for an -- for an individual.

Q. And I might take the same thing and have a very different-looking picture?

A. Yeah. Yes, exactly. You might have different numbers. You might have those numbers the same for the two adiols, you might have the 5-beta adiols higher.

Q. Take a look at Exhibit 107.

MR. BRUNET: If the technician can hear me, is it possible that the Panel members turn off their microphones manually? And then turn them back on if --

MR. YOUNG: Mr. Chair, there's a -- we tried that. There's a pause button in the middle.

MR. BRUNET: Yeah, I tried to push it, and it doesn't turn off.

MR. YOUNG: It just pauses it, so we put a water bottle on it to keep it down.

MR. BRUNET: Does that work? It's called the water-bottle solution.

MR. YOUNG: We were looking for a stapler or to tape over it, but a water bottle had to do.

MR. CAMPBELL: What number was it?

MR. YOUNG: It's 107.

Q. Mr. Shackleton, have you reviewed this document before?

A. Yes, sir, I have looked at it before.

Q. Assuming that all these results came from the same athlete, again, I think we heard the statement that these results would be inconsistent with what we know about steroid metabolism.

As an expert in steroid metabolism, do you think they're inconsistent, with your knowledge?

A. Based on the information that we have, I think they -- they can be totally consistent.

Q. And when you say "based on the information we have," what do you mean?

A. I mean, if -- if I could draw something, it would make it simpler.

Q. Yeah.

A. I think -- let's just do a hypothetical case. Say we're up minus 31 here, and we're minus 25 there, and amounts in between.

MR. BRUNET: Dr. Shackleton, I wonder if it would be possible to approach the microphone, because there are some people outside who might not be hearing you.

A. Sure.

MR. BRUNET: And us too.

A. Okay. Can you hear me better now?

MR. BRUNET: I think it's better.

A. So, say, we take, -- say we do exogenous testosterone. And our rest- -- resting level is here, and we're looking at two metabolites.

At some point, they will have to invest in one of those boards, you know.

So, the two metabolites -- well, let's get a second color.

You have to remember, we're sort of overloading the system now. You're just getting a big shot of something, and the two metabolites go down negatively. And then one of them happens to be me, and I took this, and I'm --

let's say this is a 5-beta and that's 5-alpha. I happen to be someone who drew -- is more of a 5-beta producer and, over a period of time, I'm going to go down like that.

If I was a 5-alpha producer, I might have a later time of reducing. So at any one point, now, depending on -- so, between there and there is the delta value -- the delta, the difference. And that's going to be a variable thing, very specifically dependent on -- so, in other words, for a given individual, you would need to know -- you'd have to really titrate it to get the times right so you're always comparing apples with apples and not apples with oranges.

So when you look at a chart like this, which has got -- which there are differences there. There's no differences that can't be explained by a normal disappearance curve of a compound from a human being.

MR. BRUNET: Sorry, Dr. Shackleton, if you come over there, the mic can't follow you.

A. There are no differences that can't be explained by the pharmacokinetics of a

disappearance from the human body based on different enzyme activities.

Q. And would the picture you just drew be affected if the person was switching between different kinds of testosterone application or its precursors, for example?

A. This would be affected, but it's a similar answer to one I have given you before. It's that it would -- you know, it would require investigation to find out how this would affect it. It's not something that I can just predict, you know, and tell you. But, absolutely, I mean, you start -- if you started adding second drug or something, which has slightly different metabolism, then you're going to change it. But how it changes, without doing the experiment on you, I would have no idea.

Q. A clarification: When you talked about the difference between these two lines, this is not the delta/delta that we're measuring in IRMS, correct? The delta/delta --

A. This is actually just the going down of the negative delta value for the individual analog. It's not --

THE REPORTER: It's not?

A. It's not the delta/delta value. This is the reduction in negativity on a single analyte.

Q. Is there anything you could eat or ingest that is not testosterone or one of its precursors or downstream-prohibited substances that would cause a minus 6 delta value?

A. It's not possible.

MR. YOUNG: I have no further questions.

MR. BRUNET: Thank you, Mr. Young.

Mr. Jacobs?

EXAMINATION

BY MR. JACOBS:

Q. Good morning -- or almost. Good afternoon.

Dr. Shackleton, I'm going to ask you a series of questions on some of the issues about looking at the picture as a whole. And Exhibit 107 we were looking at will be a pretty good place to start. And then Mr. Suh is going to ask you some questions about specific issues with chromatograms and issues like that.

But before we start, I had a look at

your -- your CV, your curriculum vitae. You're not a medical doctor?

A. No.

Q. And you're not an andrologist, right?

A. Nope.

Q. Now, the -- if we can get the diagram back up that you were -- just had drawn?

Now, what you drew is the 5-alpha diol and the 5-beta diol, correct?

A. Yeah.

Q. And you're showing that the -- it's basically metabolizing at a different rate in the body?

A. Yeah.

Q. But they're metabolizing in the same direction, correct?

A. What you -- I'm not quite sure of this, what you mean, the same direction. They're really going -- you are returning to basics.

Q. Right. You wouldn't see, for

example, the 5-alpha go up for a while, and then come back down while, at the same time, the 5-beta is going down, would you?

A. It's -- it depends on the timelines at the beginning of an experiment.

Q. So early on, when it's -- when it's highly negative, you might see them going in different directions?

A. One might kick in before the other.

Q. But at the point where it's returning back to baseline, they're both going to be returning to baseline, just at different levels, correct?

A. Yes.

Q. Okay. And you said this diagram, this is just the diol on the metabolites, so this isn't a delta/delta. But assuming the second delta is the same endogenous reference compound, it would track exactly the same, right, if you were looking at delta/delta?

A. It would track the same, yes.

Q. Okay. So, if you're looking at -- let me just make sure we've got the terms clear for everybody.

The delta/delta value, the difference that we're looking at is the difference between the first delta, which is the testosterone metabolite such as the 5-alpha or the 5-beta diol, and then the second delta is the endogenous reference compound, right?

A. Right.

Q. So if I use delta/delta value, you know what I'm talking about, and everyone else does.

Now, you had started to answer one question a little earlier on. I wanted to go back to that. With the administration of topical testosterone, exogenous testosterone on the skin, you said that once it's under the skin, it will be 5-alpha reduced, the testost- --

A. Some of it will be.

Q. Okay. But not 5-beta?

A. Yeah.

Q. And then you started to say, once it gets to the liver, but you didn't answer that. Once it gets to the liver, what happens?

A. Oh, well, it's got to have further reduction to go to androstanediol. We're only going down the first step. If you would -- if you refer to my chart, which is on 37, the skin would only take you to Step Number 1, and it would then still have to go to the liver before it ended up as an androstanediol.

Q. Going back to the Exhibit 107, and perhaps, we can get that up here?

MR. BRUNET: Chris -- Mr. Jacobs, is there any way to make it bigger?

Q. There we go.

Now, if we look at this, this is a table of values on certain dates, correct?

Values for the delta/delta differences?

A. Yes.

Q. And if I understand the illustration from -- that we were looking at before that you had drawn, we should expect these differences to track in the same direction on the pairs of metabolites, right?

A. Yes, I think so.

Q. Okay. So, let's start -- and when I'm talking about pairs of metabolites, the first pair would be the diols. Do you understand that?

A. Right.

Q. And the second pair would be the androsterone and the etiocholanolone minus the endogenous reference compound of the 11-Keto

etiocholanolone, correct?

A. That was the second one.

Q. Okay. Let's start with the diol metabolites.

Looking at July 11 to July 13, you have the delta/delta difference is increasing on both of those, correct?

A. Yes.

Q. So that's what you would expect if someone took testosterone?

A. Yes.

Q. And then the very next day, you have those delta/delta values dropped way down to negative 1.01 and negative 0.70, correct?

A. That's what I'm reading, yes.

Q. So would it be your opinion that, in that one day, from July 13 to July 14, the exogenous testosterone completely cleared the system even on the IRMS test?

A. This clears -- I mean, these compounds, when they're taken at certain doses, clear the system very well. But I -- you know, I'd have to defer to somebody who has done more time course experiments.

Q. So your area of expertise does not

include the time course of the metabolism of testosterone as it would affect the IRMS values?

A. I'm not -- I'm not particularly an IRMS expert. I mean, I did research in IRMS, much more -- and I have publications in it, but this is 12 years ago -- and much more a proof of concept type of -- there's -- so much more data has been obtained since.

Q. So you haven't studied, for example, if you give someone testosterone and track their delta/delta values, what you would expect?

A. I've not personally done that, no. I'm a clinical endocrinologist primarily.

Q. Have you done any research or studies on the T/E ratio?

A. No.

Q. So T/E ratio is completely out of your area of expertise?

A. Completely out of my area of expertise.

Q. So if I showed you T/E values and asked you questions about that, that won't be something --

A. Well, I'm an intelligent guy. I know -- I'm a steroid person. Yes, I can make

opinions. And I -- I've been doing GC/MS for 40 years.

Q. But those opinions would not be within the area of expertise that you're testifying on today?

A. Let's say, I have never, ever done a T/E ratio, so...

Q. Okay. Going back to Exhibit 107,

from July 14 to July 18, you see the diols, they -- the delta/delta differences for both diols increases, correct?

A. Correct.

Q. And then the same is true from July 18 to July 20, correct?

A. They -- they both -- actually, I mean.

Q. Well, let's take a look at that.

From July 18 to July 20, the delta/delta difference of the 5-alpha diol increases, but the 5-beta delta/delta difference decreases, correct?

A. Yeah, that doesn't surprise me.

Q. But isn't that inconsistent with what we were just looking at on your chart?

A. No, because we -- I mean, we don't

know dosage; we don't know sampling time. There's a whole -- other stuff that we can't interpret, because we don't know, because -- you know, all of this stuff we're dealing with is, as you know, has to do with time courses.

Q. But I thought you were saying earlier that, as you have the metabolites returning back to baseline, they're both going to be returning in the same direction, correct? So down here, you're not going to see one of these lines jump up, and then come back down, while the other one continues down, are you?

A. Somehow, I'm not following quite.

Q. Well, but the other -- the other thing that you're -- let me just ask you.

If we were to chart the difference between July 18 and July 20, on what you've done here, you would see one of these lines jumping up and the other one jumping down, right?

A. I still don't -- but, since we don't -- if there was a drug administration, or a dosing, we still don't know when it happened or whether it was on both days, one day or what.

Q. Let me ask you this, then. Since you have done us the pleasure of drawing this

one illustration of what you thought should happen, why don't you draw what actually did happen between July 18 and July 20th for the two metabolites, assuming that we're using the same endogenous reference compound. If you could draw that for us, that would be of great assistance.

A. Okay. So --

MR. YOUNG: Let me object. I mean, I think he said he couldn't do that without more information. If he wants somebody to mechanically plot the numbers on that chart, that's not a matter of expertise for Dr. Shackleton.

MR. BRUNET: Mr. Jacobs, can you rephrase your question?

Q. Well, let's go back to what you actually drew. Let me grab one of the longitudinal charts so I don't have to keep walking back and forth.

What you drew here was, after taking testosterone, both values jump up, and then they both start to return to baseline at slightly different levels, right?

A. Yeah.

Q. Okay. And what I'm asking you to do now is to draw what actually happened between July 18 and July 20; is that something you're willing to do or not?

MR. BRUNET: Mr. Jacobs, my understanding is that this is a hypothetical. And you're asking the witness to --

MR. JACOBS: Okay.

MR. BRUNET: -- illustrate a specific point which he seems not to be prepared to do.

Q. Let me ask it differently.

The hypothetical you drew does not match on what we saw on the longitudinal analysis between July 18 and July 20, does it?

A. I -- I mean, I would -- I'd still disagree with you on the basis, and I don't -- I mean, I sort of get what you're asking, but without the details of timings and things like that, I ...

Q. We're going to draw -- since you're not willing to plot out what is seen, we're going to draw what we believe it shows. And then perhaps you can tell us if what we draw is consistent with what you see on the longitudinal

chart which is Exhibit 107.

MR. SCOTT: And Howard, where do you want the dates from?

Q. From July 18 to July 20.

MR. SCOTT: This is essentially what it looks like here.

MR. BRUNET: Mr. Jacobs, do you want to pause for a minute, please.

For those in attendance, I did not present him. This is Dr. Francesco Botré. He's the Panel-appointed expert. He's the director of the WADA-accredited lab in Rome, and he will be assisting the Panel with scientific evidence.

Mr. Jacobs.

Q. Thank you.

Dr. Shackleton, is the illustration drawn there a fair representation of --

A. Well, let's -- let's just go over it piece by piece. So which is the --

Q. We're looking from July 18 to July

20.

A. And so the darker one is the 5-alpha delta, and the red is the 5-beta delta; is that right?

Q. That's right.

MR. YOUNG: Well, can I start out --

Can I start out with an objection that, if this is supposed to represent what's on the chart, it's a gross misrepresentation, because this portrays both metabolites as being equally negative. And you can see this: It's not true at all. One is at 5, and the other's at 3.5. It's not like they go down to the same level, which is what this shows.

Q. We're going in different directions; are they not?

MR. YOUNG: Excuse me. If they wanted -- if they want to draw a chart --

MR. JACOBS: Would you like us to draw a different chart?

MR. YOUNG: I -- I'd like -- if you're going to ask questions about a chart, I think probably you ought to draw an accurate one.

MR. JACOBS: Fine. I don't think the direction is going to change.

Dr. Shackleton, is the second chart that we've drawn a -- a fair representation of the direction that the 5-alpha versus 5-beta metabolites are going between July 18 and July

20?

A. A pretty informal chart, so it's going from 5.06 to 6.14 for the 5-alpha, and it's going down from 3.56 to the 2.15 for the 5-beta.

This -- this is kind of dependent on whether a single -- whether a single sample was taken at a particular time.

I mean, this is what I can't get at is that, here, you're assuming that a single -- maybe a single bolus dose was taken, and the -- and the -- I mean, I don't -- I still don't see why the 5-alpha can't go -- can't go up at the time when the 5-beta are going down, if there was a secondary dose or whatever.

Q. So -- so now it's your testimony that if somebody takes testosterone, the 5-alpha can go one direction and the 5-beta can go the other direction?

A. It -- it would -- I mean, there would be some in- -- some involvement of sequence of -- of changes. If there was -- if there were -- if, for example, these were multiple doses.

Q. So if you have multiple doses,

you're still going to have -- first both metabolites are going up, right?

A. Yes, they may not -- that was an illustration of them -- of them both going up to kind of a maximum level.

In -- there's this -- perfectly reasonable cases where the second metabolite or the 5-beta one, or the 5-alpha one may not -- may never even reach -- even, you know, straightaway, it may never reach a certain degree of negativity.

Q. Maybe one doesn't go all the way up as far as the other.

A. Maybe goes up to -- yeah.

Q. But when they start to return to normal, you're not going to have one returning down to normal while the other is going up, are you?

A. It's -- it's possible. I mean, but if -- it's...

Q. Well, if it's returning to normal, it's going down, isn't it? How can it be going up and returning to normal at the same time?

A. No, it can't be. If it's returning to normal, it's going down, yeah.

MR. YOUNG: And by "it," are we

talking about a single metabolite, or what are
we talking about?

MR. JACOBS: We're talking about the
pair of metabolites.

Q. If the pair of metabolites is
returning to normal, they're both going down,
correct?

A. Yes.

Q. Okay. And if the pair of
metabolites is going up, even at a different
level, because one might stop before the other,
they're still both going up, right?

A. Could you say that again?

Q. Sure. If someone takes testosterone
and the pair of metabolites, as you have drawn
there -- they both go -- they both become more
negative, right?

A. Right.

Q. So they're both going up on your
chart.

A. Right.

Q. One might stop going up before the
other, right?

A. Yes.

Q. But at no point are you going to
have one going up and one going down, are you?

A. I mean, it's -- it's -- I hate to
admit this, but I'm a bit out of my league

following the dynamics of this type of -- of thing on a kind of hourly basis.

Q. Okay. So -- so your chart there is not accurate then.

A. Oh, it was never meant to be accurate. It was meant as a description.

Q. Okay. So if I continue to ask you questions about how things metabolize in the body, that's out of your area of expertise, right?

A. No. I --

Q. If I --

MR. YOUNG: Can he finish his answer, please?

MR. JACOBS: I'm sorry. I thought he had finished.

A. No, I know a lot about how things are metabolized in the body, but I mean, I don't -- but, I mean -- but, I'm human. I don't know absolutely everything about everything, every metabolism. I know probably as much as

anybody.

Q. But what you don't know is, if you see a picture like Page 3, or the third illustration, where you have the metabolites going in opposite directions, you don't know what could possibly cause that, do you?

A. You see, I think what you're -- what

you kind of don't understand, really, in a way, is you haven't sort of thought through -- you're looking as a single -- you're looking at it through the eyes of a single source of -- these things have multiple sources that can affect them.

Q. I mean, I don't understand what that means.

A. Well, you're -- you're not only talking -- when you're looking at these analytes, they don't only come from testosterone. They don't only come from exogenous testosterone. You -- they're getting fed from other endogenous steroids.

Q. They would be getting fed in the same direction, wouldn't they? You're not going to eat something that causes one metabolite to go up and the other to go down, are you?

A. Not eat something. The -- I mean, for example -- I mean, adrenal DHEA or this other compound that I have here, they are continually diluting the analytes and to different extents.

Q. To different extents such that it would cause one to go up and the other to go down?

A. Yes. One, it's not necessary -- if we're dealing with -- if we're dealing with two pools. If we're dealing with a testosterone maybe to preferentially 5-alpha androstanediol pool versus an adrenal pool feeding the 5-beta.

MR. JACOBS: This would be a good time for us to break for lunch, if it's okay with the Panel.

MR. BRUNET: Are -- are you done?

MR. JACOBS: We're not done with the witness, but we'd be moving on to another area. I don't have any further questions on this particular topic. We will move on to other areas. But we can do that now, or it seems like a logical time to break.

MR. BRUNET: Right. We didn't expect to break until about 12:30, so if you

want to keep going.

MR. JACOBS: Okay.

Q. Okay. And -- and just to be clear, any sort of analysis of movement of the T val- -- testosterone concentrations or epitestosterone concentrations or T/E ratio as related to taking testosterone would not be your area of expertise that you're testifying to today, correct?

A. Correct.

MR. JACOBS: Thanks. I'm going to pass to Mr. Suh, who's going to ask you questions on some other topics.

EXAMINATION

BY MR. SUH:

Q. Good morning. Or good afternoon.

A. Good morning.

Q. And here we're talking about eating, it made me hungry.

So you're appearing here -- are you being paid for your appearance here today?

A. I am.

Q. How much are you being paid?

A. Is that a valid question?

MR. YOUNG: Yes.

A. Okay. Two hundred dollars an hour.

Q. I'm sorry?

A. Two hundred an hour.

Q. And how much would you estimate you've been paid so far in total?

A. I think what I've been paid so far is about 1800.

Q. Are you retired?

A. No.

Q. You're continuing to work?

A. Mm-hm.

Q. And do you receive any other benefit in conjunction with your appearance here today?

A. No, no.

Q. Any benefit?

A couple of things caught my

attention. You said that you are not an andrologist, correct?

A. Correct.

Q. And you also said you're not an IRMS expert, correct? That's what you said.

A. Yes, that's a perfectly valid thing, but I think, you know -- can I -- can I add on to that.

Q. Sure.

A. I'm not an IRMS expert, but I -- I work with people -- I mean, and I have worked in the field --

Q. You know IRMS experts.

A. Pardon?

Q. You know IRMS experts.

MR. YOUNG: Can the witness finish his answer, please?

A. I know IRMS collaborators and operators --

Q. Are you an IRMS expert, or are you not? Pretty simple question. I thought you said you were not an IRMS expert; is that right?

A. I -- I don't think it's quite as simple as you make out. No, I'm not an IRMS expert. I know -- I know the field, and I have published in the field.

Q. But you're not an expert. You said that before; is that right or wrong?

A. There are people in this room that are far more expert than me.

Q. And are -- you also said you're not a GC/MS expert. Did I hear that right?

A. I'm a pretty much -- I'm a good GC/MS expert.

Q. You're a good GC/MS expert.

A. Well, I think so, yeah. I have -- I've probably done it more than --

Q. How many years have you been doing GC/MS now?

A. Forty years.

Q. All right. Now, all of your analysis about what you've talked about, the values, make sense, and assumes that the values themselves are correct, right?

A. Yes.

Q. So you started out with the assumption that everything that you were provided was absolutely correct.

A. Well, to the best of my ability, I reviewed -- I reviewed the data.

Q. That wasn't my question. Did you start out with the assumption that everything that you saw was absolutely correct?

MR. YOUNG: Objection.

Q. Did you start out with that assumption?

MR. YOUNG: Objection. I think the witness has answered that question.

MR. SUH: I didn't hear an answer.

What's the answer?

MR. YOUNG: Can we have a ruling by the Panel? He didn't hear the answer he wanted, but I think we need a ruling from the Panel.

MR. BRUNET: Could you repeat the answer -- repeat the question?

Q. (By Mr. Suh) For the fourth time --

A. Yeah.

Q. -- did you start out with the assumption that all of the values that you saw here were correct?

A. Yes. Right.

Q. Did you look at any of the documents underlying those values?

A. I looked.

Q. You looked.

You would agree with me that, first of all, that good chromatography is critical to good, reliable, accurate IRMS results; is that right?

A. Good chromatography is essential.

Q. Essential. I like that. That's right. Nobody's going to disagree with you on that.

Are you familiar with this?

A. Yes, it's my paper.

Q. That's your paper, right.

MR. CAMPBELL: Mr. Suh, is that an exhibit?

MR. SUH: It's -- it is now.

MR. BRUNET: Can we focus this?

MR. CAMPBELL: What number?

Q. Am I not doing this right? I'm not very good with technology.

All right. So that's your paper, right?

A. Yes.

Q. Confirming Testosterone Administration By Isotope Ratio Mass Spectrometric... you sound like you're an expert.

MR. YOUNG: For -- for the Panel's benefit, this is our Exhibit 40 at USADA 1241, if you want to follow along.

MR. BRUNET: Mr. Suh, do you want us to get the exhibit?

MR. SUH: No, I think you will be able to see everything.

Q. I'd like to show you this. Do you recognize that?

A. I do.

Q. That's your paper also, right?

I'd like to turn your attention to this part right here. It's highlighted. And I'm going to zoom in. Here we go.

See that highlighted part?

MR. YOUNG: And and let me interject. I'm sorry to do this. But if he's going to ask the witness to comment on a document, I think the witness is entitled to see the entire document as opposed to cherry-pick sections out of it.

MR. BRUNET: Mr. Suh, do you have a copy of the document for the witness?

MR. SUH: I already had it; it got lost on me.

MR. BRUNET: Is this article in the exhibit book as well? I understand this is a second --

MR. YOUNG: The second one is not.

MR. BRUNET: The second one is not?

Q. Can you see it now, or would you like to have me --

A. No, I can see it.

MR. YOUNG: And -- and can we have a

ruling on the witness having an opportunity to look at the entire document instead of cherry-picking parts of it.

MR. BRUNET: Mr. Suh, can you --

MR. JACOBS: Yeah -- we -- what we could do is, we could move on, and I could do it at a break, give him the entire article.

MR. BRUNET: All right. Thank you.

MR. SUH: Oh, we have it?

MR. BRUNET: Do you have a copy also for the other party?

MR. SUH: It's USADA 1241. They should have it.

MR. WEISS: It's Exhibit 40, 1241.

MR. SUH: It's USADA 753, so they should have it. They produced it to us.

I've got the wrong article here.

MR. BRUNET: Could we just -- we need a little bit of time for Mr. Young to pull it out. Do you want some time to pull it out?

MR. YOUNG: I've got the exhibit that starts at 1241. Are we talking about that one?

MR. SUH: No, the exhibit that starts at 753.

Q. While we're waiting for that to come up, can you -- can you describe for me what good chromatography means? What does that mean to you?

A. Good chromatography is -- well, it

-- it can -- the optimum chromatography would be based on separation, and -- and that's mostly achieved with very lean -- very high resolution columns. There -- I mean, there are going to be times when it is that -- that baseline separation is not achieved.

Q. But you use that data anyway? If you don't get baseline separation, you go ahead and use it anyway?

A. It would depend on the circumstances.

Q. Mm-hm. And what would that circumstance be that you would have poor baseline separations and you would use it anyway, use that chromatogram?

A. If -- if you had good ways of -- of -- of correcting --

Q. If you had good ways of cleaning it up.

MR. YOUNG: Whoa, whoa, whoa, can

the witness finish his answer, please?

Q. Is that right?

MR. YOUNG: Whoa.

MR. BRUNET: Mr. Suh. Mr. Suh. Mr. Suh, could you --

MR. SUH: I'm sorry?

MR. BRUNET: -- just let the witness answer?

MR. SUH: It's just before lunch.

MR. BRUNET: Well, we still have at least 20 minutes to go. I have some nuts if you want any.

MR. SUH: That's okay. I've got enough of them.

MR. BRUNET: I'm referring to the food.

Q. Sir --

A. Yeah.

Q. -- before we get that article --

MR. BRUNET: Could you, please, repeat the question.

Q. Could you read back the question, please?

(Reporter complies.)

Q. What are the circumstances?

A. Well --

MR. BRUNET: Mr. Suh, just let the witness answer, please.

A. I mean, I would be looking for an example in things which have already come up to date; for example, the epitestosterone measurement.

Q. I'm sorry. My question -- just to be clear. We're talking about, from a theoretical standpoint, what circumstances you would use a chromatograph -- a chromatograph in which you didn't have good peak separation. What circumstances would you use that? You have a chromatogram. You're running an IRMS test. You get a chromatogram. Oh, we've got -- we've got --

A. No, it's very important.

Q. It's very important. And so what circumstances would you use that chromatogram?

MR. YOUNG: And -- and may I object? We started out talking about GC/MS, and that question was, we're running an IRMS test? What are we asking this witness? GC/MS or IRMS?

Q. Either. A chromatogram for an GC/MS or an IRMS. A chromatogram that you would use

for either test?

A. No, it's -- it's -- it's very important. I agree with you.

Q. Right. But, I just want to get back to the point. You had said earlier -- you were about to answer that there are circumstances in which you would use a chromatogram with no peak separation. What --

A. I never said that.

Q. Oh, I'm sorry. I misheard. Never -- you would never do that, correct?

A. Yeah.

Q. All right. What about when you have a co-eluting peak? That's a peak when you've got peaks overlapping -- you know what I mean. You know what it is better than I do.

A. Yes.

Q. What circumstances would you use a chromatogram in which there's co-eluting peaks?

A. Well, it's difficult for me to answer in one respect, because my line of work is on the whole different -- is different from this.

Q. So you don't know the answer to that question?

MR. YOUNG: Again.

MR. BRUNET: Mr. Suh. Mr. Suh. Please. The witness was in midphrase.

MR. SUH: My apologies.

MR. BRUNET: Thank you.

A. I mean, could I make -- I mean, in IRMS, I think it's very important to have -- to have peaks which are -- are baseline separated.

Q. I would ask the Panel to direct the witness to answer the question.

The question is: What circumstances would you use a chromatogram in which you have co-eluting peaks? What circumstances would you use that chromatogram?

A. When you're talking about co-eluting, it might be -- it might be a very -- it might be a very small shoulder that can --

that the data system can make a very adequate correction for.

Q. Right.

A. I do this -- I mean, I do -- I do clinical analysis all the time and base it on this.

Q. So --

A. Yeah.

Q. Go ahead.

A. Just to finish, it's a dream that every component in every chromatogram can be -- can be baseline. Life's not like that. You know, I mean, we -- we strive to get to as close to perfection as we possibly can. But with -- in the end, it's like anything else that you get as close to and you find -- and you determine what's important in a particular case.

Q. Well, let me just get back to the point that you were raising, because I think what you were saying goes -- correct me if I'm wrong -- is that you would use a peak that is co-eluting if there were techniques to remove the effect of that co-elution, correct?

A. And in what context do you use that?

Q. I don't know. That's what you said.

A. Are you talking about IRMS?

Q. I'm talking about IRMS.

A. No, you shouldn't use it.

Q. Thank you.

All right. Let's talk about sloping baseline. Do you know what I mean by a sloping baseline in a chromatogram?

A. Yes, I do.

Q. And what circumstances would you use a chromatogram that had a sloping baseline?

A. I don't particularly have a problem with a sloping baseline.

Q. You don't.

A. No.

Q. Do you know the difference between a downward-sloping baseline and an upward-sloping baseline?

A. I mean, I know the difference, yes.

Q. Do you know why they are caused -- what causes a downward-sloping baseline as opposed to what causes an upward-sloping baseline?

A. I know the causes of both.

Q. Okay. Tell me what the causes are for a downward-sloping baseline.

A. A downward-sloping baseline would probably be the involatile materials in the sample or something.

Q. And those involatile materials in the sample, you wouldn't know what their Carbon-13 or Carbon-12 makeup is, would you now?

A. It could be measured.

Q. Okay. It could be measured, right?

A. And I'm sure it is measured.

Q. Hold that thought. We'll get to that.

All right. Let me show you some chromatograms.

All right. This is USADA 173. Okay. That's the F3 Fraction from the Sample A testing at Stage 17.

MR. YOUNG: Can we have a minute for the witness to find that in the original? It's -- it would be in Volume 2.

MR. SUH: I've got -- I've got a picture of it up on the screen.

THE WITNESS: Yes.

MR. YOUNG: No, but I'd like you to look at the real document.

THE WITNESS: All right. Sure.

MR. BRUNET: Volume --

MR. YOUNG: 2.

MR. CAMPBELL: What exhibit?

MR. SUH: That's USADA 173.

MR. JACOBS: It's part of Exhibit 23 -- 24.

MR. YOUNG: 24.

MR. CAMPBELL: Which one is it? I

thought it was 166. It's USADA?

MR. SUH: We're referring to USADA -- it's USADA's 173.

MR. JACOBS: Exhibit 24.

MR. CAMPBELL: Got it. We got it.

Q. (By Mr. Suh) All right. While we're waiting, just for clarification's sake while we're all looking for the document: Fraction 3, do you know what Fraction 3 means in this case?

A. No, tell me.

Q. You don't know what a Fraction 3 is?

MR. YOUNG: Let's let the witness find his page first.

A. How do I find this page?

Q. Before you look at the page, do you know what Fraction 3 is in the case? Do you know what the Fraction 3, which target isotope target Fraction 3 is?

A. I think it's the androstanediols.

Q. You think it's the androstanediols.

A. I reviewed all this -- I mean, all this documentation, but I'm not the -- you know, I'm not from LNDD.

Q. It's the documentation which underlies the results which you're saying makes

sense. You think it's the androstanediols? You don't know for sure?

For the record, Fraction 3 is -- is -- contains 5-alpha, 5-beta and the pregnanediol.

A. Yeah, I thought that's what it was.

Q. What's in Fraction 2?

A. Androsterone, etiocholanolones.

Q. And what's in Fraction 1?

A. Pregnanediols.

Q. I'm sorry?

A. No -- pregnanediols are the androstanediols.

Q. What's in Fraction 1, sir?

Looking is cheating. What's Fraction 1? What's Fraction 1?

A. I can't answer that. I'm sorry.

Q. Right. Right.

Are you at USADA 173? I'm going to start handing out these pages to make it go a little quicker.

A. 173.

Q. Yeah.

MR. YOUNG: Can I help the witness find that page?

MR. BRUNET: Please do, Mr. Young.

A. Okay. Got it.

Q. Got it? Looking at USADA 173, can you see where -- do you see up on the screen where there are circles? I'd like to turn your attention to the circles.

A. I'm looking.

Q. Would you agree that those chromatograms don't show good peak separation?

A. I think they show a lot of good peak separation.

Q. Oh. So these chromatograms are okay. This chromatogram is okay, USADA 173?

A. I'm just eyeballing it. I'm seeing baseline resolution.

Q. Mm-hm. You don't see that in that chromatogram that there are the little humps between the two peaks of interest? You don't see that?

A. I'm -- I fail to see the little humps that you're --

MR. BRUNET: Are you referring to the timeline, Mr. Suh?

MR. SUH: Yes.

MR. BRUNET: Which time are you

referring to?

Q. Right between 1200 and 1400. They're circled right up -- right up on the screen. If you look up right on the screen?

MR. BRUNET: What is your question?

A. The little humps are separated. I'm not quite picking you up.

Q. And you think the peaks show good separation there, right?

A. I think so. I can see the one between, for example, the one with the negativity value 28.82 and 32.12. It goes right down to the bottom as far as I'm concerned.

Q. Let me show you what is USADA 349. Do you see USADA 349 --

MR. BRUNET: I'm sorry. Mr. Suh.

MR. YOUNG: May I help the witness find that page as well?

MR. BRUNET: Yes, please, Mr. Young.

Q. Can I have USADA 349? I have a copy of it if it's helpful. I've got it right here.

All right. To make this a little easier, maybe we can blow up that -- that chromatogram.

Now, do you see that there is a --

in this chromatogram, there is a downward-sloping baseline?

A. I see it.

Q. There is a downward-sloping baseline there.

MR. BRUNET: Did the witness answer the question?

MR. SUH: Yeah.

Q. And looking at the chromatogram itself, looking at the peaks of interest between

28 79 and 31.88, would you call this good -- a good chromatogram?

A. I think -- I think it's acceptable, yeah, it's good.

Q. All right. "Acceptable." What do you mean by "acceptable"?

A. I think it's acceptable data. I would be quite happy with that.

Q. If I could turn your attention to USADA 161?

A. I still don't know the numbering system. Is that 121?

Q. We're using these.

A. Oh, that number.

Q. Dr. Shackleton?

A. Yes, mm-hm?

Q. I'd like to -- now that we've gone through a few chromatograms, I'd like to show you this chromatogram.

MR. BRUNET: Mr. Suh, is this still Number 161?

Q. No, I'm going to -- I'm going to hand out the pages. It's USADA 171.

MR. BRUNET: Can you give us a moment?

MR. YOUNG: Should -- should the witness be looking at 171?

MR. SUH: Yes, 171. 171.

A. Okay. I'll find it.

Q. Okay.

A. I'm looking at it.

Q. Okay. So here's the thing, Dr. Shackleton. I did want to show you a few of the IRMS chromatograms first, and you said that they were all fine to you. Remember that?

A. I thought they looked good.

Q. Okay. Now, what I'm going to show you is the GC chromatogram of that same sample, all right?

A. Right.

Q. And then I'm going to ask you a question about it.

A. Okay.

Q. All right? Because you've already said a couple of them are fine. Now, I'm going back to the first one. The first one I showed you, you said it was all right. You said -- this is 171. And I'm going to point to something. I hope our presentation folks can make this bigger. You see this little hump right here? That one right there?

A. Right.

Q. Yeah. That is the GC chromatogram that is the same sample from 17 A, F3, all right, as the one that you said was fine. Okay?

A. Do we know that that little hump is

included in the integration or in the peak that's in the IRMS peak?

Q. We'll get to that in a minute. Let's just hold on. Because this chromatogram -- oh, by the way, for the Panel's sake, and for perhaps everyone else's sake, can you explain why there are two chromatograms associated with each sample? There's a GC chromatogram and there's a --

A. Is there somebody in the room that can address this? Because I'm not a real -- you know, I'm not really a lab --

Q. I don't know. That's okay. Somebody else will talk about it, if you can't.

A. No, I would rather somebody else.

Q. All right. So --

A. I mean, I'd like you to understand that, whilst I do have expertise in this -- in this field, I'm not an operator in a drug control lab or anything like that.

Q. Well, you said that these chromatograms are fine.

A. In my opinion, from a -- from a chromatographer's point of view.

Q. Sure. But let's take a look -- let's take a look at the IRMS chromatogram that is -- that is associated with this one. It's the same sample. Do you -- remember we circled this, and you said it was fine? Remember that?

A. Right.

Q. Let me ask you: These two, of course, one's the GC/MS -- I'm going to circle this to make it easier. Do you see that right there? See that little point right there?

A. Right.

Q. Okay.

Now look at this chromatogram. Right in here, you said it was fine, you said it was baseline separated? Remember that?

A. Yes.

Q. Where did that hump go?

A. I mean, have you -- have you knowledge about what that hump is about? How big it is, relative to the -- to the size of the peak, even if it was included.

Q. You don't know what the Carbon 13/Carbon 12 ratio is of that hump; do you, sir?

A. If that -- can I -- my argument would be as a person that does chromatography all the time, if that little hump has -- and I'm approximating now -- if that little hump is one percent or two percent of that peak, even if it was included and even if it had a low Carbon-13 value, it would never be -- it wouldn't even be measurable, that difference, even if it was included. And I don't know. I wasn't doing the chromatography. And I wasn't --

Q. The point --

A. -- to my -- in my opinion, it's

irrelevant.

Q. Let's take it one step at the time. Okay? Step one: You don't know where that peak has gone, correct, between the two chromatograms? It disappeared.

A. No, I don't know where it is.

Q. Okay. All right. That's just a question. That's a question.

A. But these are different techniques, also.

Q. Hold on.

A. This is -- yeah.

Q. You don't know where it is, right?

A. (Nod of head.)

Q. Okay. Now, you also don't know what the Carbon 13/Carbon 12 of that peak is, correct?

A. But my point is, it's irrelevant.

Q. No, now wait a minute. You don't know what it is, correct?

A. I mean, you can, perhaps, ask the person that did the analysis whether the -- whether there is a numerical value on that. But it can have no possible difference or -- or effect on the Carbon-13 content of the peak even if it was included in the...

Q. So your testimony is, is that, in this case, good chromatography doesn't matter?

A. This is good chromatography. I mean, this is my --

Q. But disappearing peaks is --

MR. YOUNG: Whoa, whoa, whoa.

Q. -- good chromatography.

MR. YOUNG: Excuse me? This is about the 15th time that the witness hasn't been allowed to answer the question. Can we -- can we have the question read back?

Q. This is about the 15th time that the witness has answered some other question that I've -- that I haven't asked.

MR. BRUNET: Mr. Suh, -- Mr. Suh, could you reformulate the question, and let the witness answer, please.

Q. Sure. This peak -- this peak, we talked about when we started out, about a co-elution and all of these things related to bad chromatography. You remember that, right?

A. Yes.

Q. And you said that you don't use bad chromatography?

A. I don't what? No, no, I don't. If I got this, I would --

Q. I'm sorry. What were you about to say? "If I got this," what?

A. If I got this chromatogram, I would think that this is a good chromatography.

Q. Because it sounded to me like you were about to say, if I got this, I wouldn't use this chromatogram. Can you be --

MR. BRUNET: Mr. Suh. Mr. Suh, please refrain from putting words in this witness's --

Q. Sure.

A. To chromatograph this, they would look at this, and they would be really quite proud of -- of a chromatogram like this.

Q. All right.

A. I would be. And I was the first person to do capillary gas chromatography of steroids.

Q. Okay. I'd like to show you, now, this chromatogram. This is LNDD 991.

MR. YOUNG: Can we -- can we spend a minute for the witness to get this to look at?

MR. CAMPBELL: Which exhibit, Mr.

Suh?

MR. SUH: It is LNDD 91.

A. What number is the USADA number?

Q. There isn't one.

MR. JACOBS: That's Exhibit 87.

A. I'm ready.

Q. Ready?

MR. BRUNET: Not yet.

Okay. We're ready.

Q. Why don't you turn your attention to this chromatogram. It's the F3 sample from Stage 19.

A. I'm looking at it. Okay.

Q. You're looking at it? Do you see where I circled up that area --

A. Yup.

Q. -- on the slide? Do you see that this chromatogram shows a high downward-sloping baseline?

A. Is it's a downward-sloping baseline. I hesitate to use the word -- what was the --

Q. A high downward sloping?

A. I wouldn't say high.

Q. It's a downward-sloping baseline.

A. Yeah.

Q. You agree that that exists here. Would you agree that you have no peak separation here?

A. I think you've got very good peak separation.

Q. They're touching each other. Are you sure you would stake your professional reputation on that this is a good chromatogram and that this has good peak separation?

A. I think it's really rather good. I mean, if this -- if this -- if there's any overlap, it's probably like at the 2 percent level or something like that.

Q. How do you know that?

A. I'm just -- I'm just eyeballing it.

Q. You're eyeballing it. You're guessing.

A. Eyeballing is different from guessing.

Q. How is it different?

A. Because, I'm approximating it having looked at thousands of chromatograms.

Q. Do you know what the Carbon-13/Carbon-12 value is of the eyeball --

A. Yeah, I mean, I don't think you've

actually even done the math, is that even if -- even if -- even if there was a component that's been shared between two peaks, it is at a one or two percent level, and it has the lowest Carbon 13 value imaginable, say minus 35 or something. It still cannot affect the delta numbers of two bigger peaks adjacent to it.

Q. How do you know that it's only

sharing it at one to two percent?

A. Because I can see the size of these peaks.

Q. You're looking --

A. I'm looking, now, at this tiny little peak which is between the end of 13 and the beginning of 14. It's -- on my chromatogram thing here, it's about two or three millimeters above baseline. And if you think of that compared to the size of the -- the adjacent peak, it's extreme. It's -- it couldn't be enough even if it had a really, really low Carbon 13 content to make any material difference. I doubt you would even see a number difference.

Q. All right. Let's look -- let's look at this chromatogram. Wow.

MR. SUH: It is LNDD 894.

MR. BRUNET: Excuse me?

MR. SUH: It's LNDD 894.

MR. BRUNET: Can you give us a moment, please.

MR. WEISS: It's Exhibit 86.

MR. YOUNG: 894?

MR. SUH: Yes, 894.

MR. BRUNET: Dr. Shackleton, are you ready?

A. I'm ready. Oh, sorry.

MR. BRUNET: Mr. Suh.

Q. Do you see that this chromatogram shows a downward-sloping baseline?

A. It does. It does.

Q. And do you see that -- would you agree that this chromatogram is -- do you see the circles there?

A. Yes.

MR. CAMPBELL: Mr. Suh, there's two circles there. Which one?

MR. SUH: I'm sorry. The second circle there; the one without the arrow.

MR. CAMPBELL: The one without the arrow.

MR. YOUNG: The one without the arrow.

A. Yes.

Q. Do you see that?

A. I see it.

Q. Would you describe this chromatogram as being a good chromatogram?

A. I don't like it as much as the other ones, but I think it -- I think it's good.

Q. You don't like it as much as the other ones?

A. No.

Q. What does that mean?

A. Because it's got -- it's -- it's --

aesthetically, it's not as nice.

It's -- it's got relatively good separation of the peaks in question.

Q. Let me ask you this: See if I can -- do you see this area right here, all the way under here?

Dr. Shackleton?

A. Yeah, I'm looking.

Q. Are you looking up at the screen? I'm over here now.

A. Yeah, I'm looking at the same.

Q. How do you know that the volume under here isn't absorbed in this peak improperly? Would this -- would this background, as high as it is -- how do you know? How can you tell that -- that these values aren't contributing to these values? How do you know that?

A. I -- I just don't think there can be enough material in order to -- to -- to change it. And also, this -- the background is known for the -- for these runs, right?

Q. The background is known for these runs?

A. Yeah, the background carbon -- I mean, the -- the -- this is a process where the carbon isotope ratio is known throughout the run, right? As far as I know.

Q. That's for you to answer.

A. It's not my run. I didn't do it.

Q. It's not my run either.

A. No. Well, you know, there will be somebody that you can ask that question.

Q. Let me ask you. What -- what -- how can you be assured that the volume under there is not co-eluting and adding to the values?

A. I mean, I still go back to my point, is that, what -- however low the value, to -- to bring -- you know, to markedly change a value from, say, 25 to 29, or whatever, minus 25 to a minus 29, you essentially have to have a component equal size or maybe even, you know, half again, just to sort of -- a very small component cannot -- cannot add to an immeasurable amount, you know, of negativity.

Q. Would you agree -- you said that this chromatogram is not as good as the other chromatograms, right?

A. I mean, it's quite obvious, in looking at it. But I mean, yeah -- but I mean -- this, I think -- at some point I think you fail to see that this -- that every sample is different. Everybody tries to do their best. Hundreds are being done every day. And this is -- is -- in reality, it's not -- maybe it's not their best one, but it's a pretty good one.

Q. Close enough.

A. I would think so.

Q. Close enough.

A. But I -- you know, you need to ask the --

MR. YOUNG: Sir --

Q. Let me ask --

MR. YOUNG: Whoa, whoa, whoa. Sir --

Q. Let me ask you this question.

A. Yes.

MR. YOUNG: Were you finished?

A. Yeah, he can ask me.

Q. Let me ask you this question. I would like you to prove to me, prove to me, that this bad interference with this chromatogram did not affect the adverse analytical result of the athlete.

A. There will be other people you can ask that question.

Q. You can't answer it.

MR. BRUNET: Mr. Suh, your question isn't imprecise.

Q. All right. I'll try to do better.

Prove that this interference, this matrix interference, did not affect the adverse analytical result.

A. Assuming it's matrix interference,

but you're going to have to ask somebody who's closer to doing this than myself. And I don't

think it's a reasonable question to ask me, looking at this chromatogram.

Q. You can't prove it.

A. How can I prove something when I'm not privy to the -- you know, to the -- to all of the data, and, you know, it's not my method -- it's not -- I mean, I'm still, you know, to some degree making my -- making my best judgments on -- on what you're asking. I wasn't there.

Q. This is a yes-or-no question:

Can you prove to me that the matrix interference we see here did not affect the --

MR. YOUNG: Whoa, whoa.

A. I can't --

MR. YOUNG: Let him finish, and then I'll object to when he's done.

Q. -- the adverse analytical result.

MR. YOUNG: He's already asked that question, the witness has already answered, and it's an improper question.

MR. CAMPBELL: How is it an improper question?

MR. BRUNET: Well, it's already answered.

MR. CAMPBELL: I didn't think he answered it. I haven't heard him answer a lot of questions. I mean, I'd like to see some answers to some direct questions, and then he can explain.

MR. YOUNG: Can we have a ruling on my objection?

MR. BRUNET: Ask the question the last time, and the witness will provide the answer.

Q. Can you read -- will you read the question, the last question. It was a yes-or-no question the way I phrased it.

(Reporter read the question beginning on Page 215, Line 10.)

MR. YOUNG: And I think the witness is entitled to know that he can answer yes or no, or he can answer whatever is the correct way to answer it.

A. My answer is no, I cannot prove it, but it's not -- I don't feel it's my -- my position to be that I should be able to --

MR. SUH: Thank you.

MR. BRUNET: That's your answer, Mr. Suh.

MR. SUH: Thank you. That's my

answer. Can we take a break for lunch?

MR. BRUNET: Are you done with Dr. Shackleton?

MR. SUH: No, I have quite a bit more to go through with him.

MR. BRUNET: Do you know about how long?

MR. SUH: Probably about 45 minutes or so.

MR. BRUNET: Then we'll break for lunch and we'll be back in 45 minutes at 1:30 sharp.

(Recess taken for the noon hour from 12:43 to 1:40 p.m.)

(Recommencing at 1:40 p.m.)

MR. BRUNET: Welcome back.

Mr. Suh, can you resume, please.

EXAMINATION (cont'd.)

BY MR. SUH:

Q. For the record, the witness considers himself to be sworn pursuant to the same oath he took earlier at the start of his testimony, correct?

A. Yes.

Q. Dr. Shackleton, you had described in the middle of our testimony last, before we broke for lunch, that there were other factors that would impact your analysis of whether or not some of the matrix interference we've seen would impact the final analysis. What are some of those factors?

A. The factors would be, like, to what extent the analysts themselves were taking account of that.

The other thing is the relative amounts. If you had a small peak, for example, which was a tiny percentage of the peak of your analyte, it wouldn't make any difference to the final number or an insignificant difference.

Any further questions about that? I mean those would be two.

Q. Did you, in your preparation for your testimony today, look at any of those factors as they relate to these chromatograms?

A. Only in the respect that the chromatograms I looked at, my interpretation was that even if there were tiny shoulders, it would make an insignificant difference to them.

Q. You said you spent about nine hours preparing for this arbitration?

A. Something like that.

Q. And of that amount of time, how much time did you spend reading the briefs?

A. I read -- I probably spent five or six hours.

Q. Five or six hours of the nine hours you spent reading the lawyers' briefs, correct?

A. Yes.

MR. SUH: No further questions.

MR. BRUNET: That was a quick 45 minutes.

MR. SUH: It was. We decided -- we looked at the clock and saw how much time it was going to take. We thought we would try to move

it along.

MR. BRUNET: Thank you.

MR. SUH: We didn't realize we'd spent -- we can --

MR. BRUNET: No, that's fine. Thank you. We'll just move along.

Mr. Young.

EXAMINATION

BY MR. YOUNG:

Q. Dr. Shackleton, could you look at

Exhibit 40, Page USADA 1241.

A. Yeah, I've got it.

Q. That's a study that you published?

A. Yes.

Q. Okay. Take a look at -- now, this was a study of five subjects?

A. Yes.

Q. And it involved a single injection of testosterone?

A. Yes.

Q. Take a look at the graphs that are portrayed for those five subjects on Page USADA 1245.

A. Got it.

MR. BRUNET: Do you have it, Mr.

Suh?

MR. SUH: Yes, we do.

MR. JACOBS: Wait a minute. I'm looking at the wrong one. Just a second. Sorry.

MR. YOUNG: Tell me when you're ready, Howard.

MR. JACOBS: I'm ready.

Q. Mr. Jacobs was asking you questions about whether it was possible for one of the diol metabolites to still be going down, becoming more negative, while the other diol metabolite was going the other direction,

becoming more positive. Do you recall that he
asked those questions?

A. I recall.

Q. Do any of the diagrams on this page
reflect on that question?

A. Yes, indeed.

Q. Tell me what I'm looking at.

A. For example, if you're looking at
Subject 5 on days 3 and 4, the 5-beta diol minus
the pdiol is still -- it's still getting more
negative, while the 5-alpha diol minus the pdiol
is getting more positive.

Q. Okay. Take a look at Subject -- I
guess it's 2 B.

A. Also the same can apply also on Day
3 and 4. The 5-alpha is still getting more
negative, the 5-beta is getting less negative
and, also -- it also applies around Day 9 or 10.

Q. Okay. Next I would like you to look
at Exhibit Number 117. I'm sorry. It's 107.

A. Oh, 107.

Yeah, 107. I've got it.

Q. That's okay. You can just look at
the screen.

A. Yeah.

Q. Can you see that okay?

A. I can see it.

Q. If another dose of the same

prohibited substance or a dose of another prohibited substance would have been taken sometime between July 14th and 5-18 -- and July 18th, would that have an impact on these metabolite results?

A. Yes.

Q. How about between the 18th and the 20th?

A. Yes.

Q. And would it matter when, in either one of these time periods, the substance or different substances were taken in terms of how it would impact this chart?

A. It would make a difference.

MR. YOUNG: I've no further questions.

EXAMINATION

BY MR. JACOBS:

Q. If we can go back to the study we were just looking at. It starts at USADA 1241, I believe.

And I just want to make sure I understand what you did in this study. You gave an intramuscular injection to these individuals one time, correct?

A. One time.

Q. And then, after that, you collected urine samples on a daily basis and ran the IRMS test, correct?

A. Correct.

Q. When you gave the intramuscular injection of testosterone, did you measure what that did to the concentration level of testosterone?

A. No.

Q. You didn't look at --

A. Well, we knew that the, we did the T -- epi T/E ratio.

Q. And that T/E ratio went way up, right?

A. No. In half the cases, there was no -- there was -- it didn't pass the cutoff.

Q. Is that somewhere in this study?

A. It is.

Q. Okay.

A. It's on Page USADA 1247.

Q. Are the actual testosterone and epitestosterone concentrations provided anywhere here?

A. No.

Q. Do you recall whether, after the injections of testosterone, the actual concentration level of testosterone rose?

A. I don't recall.

Q. Would you expect that it would rise after an injection of testosterone?

A. Depending on the metabolic rate of the person.

Q. So some -- I'm sorry. I didn't

mean --

A. It might, depending on how fast the person metabolizes it.

But clearly, though, even after a hefty dose, relative to the epitestosterone, only in some individuals is there a marked increase.

Q. And you were shown on Page -- it was USADA 1245?

A. Yeah.

Q. And you were pointed to two of the subjects. One was Subject 5, which is the lower right-hand --

A. Yeah.

Q. Now, were you saying that that is an example of a situation where the difference in the delta/delta value would be going in opposite directions?

A. Yes.

Q. Okay. Because --

A. I made a misstate- -- comment, even though I should have known my own work earlier.

Q. As I look at the Subject 5, you have -- okay, the closed rectangle is 5-beta, correct?

A. Correct.

Q. And that one is staying level at a time that the 5-alpha is dropping there somewhere around Day 6 or so, right?

A. Let's see. At Day 3 in Subject 5, they're both identical.

Q. Right.

A. And on Day 4, the 5-alpha is getting less negative, and the 5-beta is still getting more negative.

Q. But they're still going in the same direction, correct?

A. They're going in opposite directions.

Q. On Day 5? Maybe you can show me. Can I approach?

A. Yes, okay. Sure. These two points here.

Q. Okay. So I should be looking over here.

A. That one is going down, and that one is going --

Q. Okay. Got it. I was looking at the wrong place.

MR. YOUNG: Can we have -- can we

have the witness show the Panel what he just showed Mr. Jacobs?

A. It's -- looking at the graph here, if this is Day 3 and that is Day 4, the closed circles show that the 5-beta number is getting more negative while the 5-alpha androstenediol is getting less negative. They're going in opposite directions just there.

Q. So what that shows is roughly -- I'm sorry. You said four days after injection?

A. That looks like four days, yes. No. Injection was on here -- injection was on Day 3, and I think that's listed in the -- yeah. It says, Spot urine samples were collected for two days prior to an intramuscular injection and --

Q. The difference there, that's about a three -- a 0.3 per mil difference, correct?

A. Well, let's just look at it. I mean, I've got the hard numbers here, so ...

Yeah, for the 5-beta, yes, approximately, that's 0.3, maybe 0.4.14.

Q. So somewhere in the 0.3 to 0.4 per mil difference?

A. Mm-hm.

Q. Is that "yes," for the record?

A. Yes. Yeah, I'm sort of eyeballing it, and it looks that way.

Q. That 0.3 to 0.4 per mil difference would be within the measure of uncertainty of the tests you're running here, would it not?

A. It's possible, yeah.

Q. And you did not, in this study, look at androsterone or etiocholanolone?

A. No.

MR. JACOBS: Thank you. Nothing further.

MR. BRUNET: Thank you, Mr. Jacobs.

Do we have anything, Mr. Young?

MR. YOUNG: Nothing further from USADA.

MR. BRUNET: Thank you very much, Dr. Shackleton.

MR. YOUNG: Our next -- Mr. Chair, are we ready for our next witness?

MR. BRUNET: Yes, we're ready for your next witness, Mr. Young.

MR. YOUNG: Our next witness will be Dr. Tom Brenna.

MR. BARNETT: Mr. Chair, if I can approach. I'm just going to bring the

demonstratives we'll use with Dr.- --

MR. BRUNET: Mr. Barnett, I can't hear you.

MR. BARNETT: I'm just going to bring the demonstratives we're going to use with

Dr. Brenna.

MR. BRUNET: Please come up.

MR. BARNETT: And we're going to have to talk microphones at the end of the day.

MR. BRUNET: I take it the water bottle has a reverse function at this time?

MR. YOUNG: Exactly.

WHEREUPON,

J. THOMAS BRENNA, Ph.D.,

the witness herein, having been first duly sworn to state the whole truth, testified on his oath as follows:

MR. BRUNET: Mr. Young, before you proceed, we're just going to clear our workspace here for a minute.

EXAMINATION

BY MR. YOUNG:

Q. Dr. Brenna, what's your occupation?

A. I'm a professor of human nutrition and director of undergraduate studies in the

division of nutritional sciences at Cornell University. I'm also a professor of chemistry and chemical biology at Cornell in the graduate program, and I'm an adjunct professor at the University of Rochester Medical College.

Q. I'm going to ask you a series of questions about isotope ratio mass spectrometry and, in particular, as it was used by the Paris laboratory.

Could you give the Panel a brief summary of your expertise in that area?

A. I started with chromatography in the late 1970s, in gas chromatography in the late 1970s, and with mass spectrometry in the early 1980s. I've worked with various forms of mass spectrometry, and in 1989, I started working in the area of isotope ratio mass spectrometry, specifically GC combustion isotope ratio mass spectrometry.

I've published on instrumentation in this area, and in data processing of various sorts, such as overlapping peaks and some things associated with the baselines and that sort of thing.

My specific application, besides

instrumentation, is not in the area of steroid metabolism, but in another area of lipid metabolism, which is polyunsaturated fatty acid metabolism. So I do routinely analyze real samples from humans and other mammals, and so I have some -- I have considerable experience in analysis of real samples as well.

Q. Have you done work on steroids with IRMS?

A. I've done some work on steroids with IRMS. I have a grant from USADA in which --

which is intended to do a number of things: One is to create standards for -- steroid standards for use in the international doping community. Another is to refine methods to permit more rapid analysis and -- of steroids as well, to simply improve things. Anything can be improved, so we're hoping to improve things.

Q. Okay. Have you ever testified before?

A. I told you no yesterday, but I remembered that I did testify in a small claims court once.

Q. As an expert witness?

A. On my backyard.

Q. Other than in the doping-control area, what other areas is IRMS used in?

A. IRMS developed over the years in geochemistry, particularly, in biogeochemistry.

It is used extensively in some aspects of biomedical research, specifically for analysis of body water and for various types we're looking at, water turnover, energy expenditure. It was also used in various sorts of breath tests, that is, testing for specific metabolic issues; and in some diagnostic applications, it has been used.

Q. And these are health --

A. Health-related diagnostic

situations, that's right. And GC combustion has been used extensively in research settings, as well, along those lines. It's also used in areas such as ecology and environmental science and so forth.

Q. Is it part of your everyday job to review IRMS chromatograms?

A. Yes, it is.

Q. In his opening presentation, Mr. Suh mixed chromatograms from both the T/E ratio analysis and the IRMS analysis. Does the T/E

ratio analysis that the Paris lab performed have anything to do with the IRMS results?

A. Well, from the perspective of affecting the results, I would have to say no.

Q. In -- as a scientist performing IRMS, do you use -- would you have gone through that kind of T/E ratio analysis?

A. Just to clarify. In order to validate the IRMS results?

Q. Yeah, that's where I'm going.

A. I probably would not have.

Q. What documents have you reviewed in this case?

A. I reviewed the -- I specifically focused on the IRMS results from the A Samples and the B Samples, focusing particularly on the F3s and, in a considerable amount of detail, the results of the reanalysis -- reprocessing, I think, we've been referring to -- on 4 or 5 May, which was a little more than a week ago, in Paris.

And there are various other documents I've reviewed, but there are a lot of pages.

Q. You were physically present for the

reprocessing that took place on May 4th and 5th?

A. Yes.

Q. Have you also reviewed the documentation packages for the ten samples that were analyzed starting on April 16th?

A. I spent about two or three hours reviewing them.

Q. Okay.

And when you reviewed those documentation packages, what did you focus on?

A. I focused on the specific peaks associated with the steroid analyses themselves. So, in other words, I looked carefully at 5-beta, 5-alpha pdiols in all 10 chromatograms and evaluated them for peak integration, at least the graphical representations I evaluated for peak integrations.

Q. You referred to Fraction 3.

A. Yes.

Q. And what is Fraction 3?

A. Fraction 3 is the fraction that contains the 5-beta and 5-alpha and the pdiols and the diols that are at issue.

Q. Do you have an opinion on whether the A and B Sample results for Sample 995474

produced by the Paris laboratory are reliable?

A. I do have an opinion, and I believe they are reliable.

Q. Okay. And what's -- could you take me through the basis of that opinion?

A. The A and B Samples I looked carefully at the -- well, before I get into that.

First I looked at the controls that the Paris lab ran. They ran several sets of -- or several levels of controls. The first-ran controls verify that the IRMS instrument itself, distinct from the gas chromatograph that was attached to it -- the IRMS instrument itself was performing properly.

They ran controls to determine that the unit, GC combustion IRMS, the whole machine together, was working properly for standards; that is, for mixtures that resemble -- mixtures with analytes that resemble the actual analytes at issue.

And they ran -- and, within that, there were standards for precision and standards for accuracy, that is standards that establish whether the instrument delivers numbers that

are -- well, we say the same every time, but we mean -- we establish the experimental error and whether it is within reasonable limits, and then also standards that evaluate whether the instrument delivers mean delta/delta values that are within acceptable limits; that is, for accuracy, in other words.

We know the isotope ratio, we analyze the sample, and we determine whether the numbers are within acceptable limits. We ran those standards.

It also has standards that have been -- a standard that has been added to every sample that elutes early, and that standard is further checked to determine that the instrument is running properly during analysis of every particular sample. And then there were standards run after the sets of analytes. So there were standards at each level.

Q. Okay.

A. Okay. But that doesn't answer the whole question.

So those are the standards that lead me to believe that the actual IRMS is performing properly. And then there's another level of standards that are run, which are blank urines, and the urine matrix is intended to resemble -- well, the blank urine matrix is intended to resemble the urine matrix of the athletes. And those were run -- well, those were processed identically with the athlete's sample, and then those -- and the numbers for those, analyzing those standards, were also analyzed at the same time as the athlete's standard -- as the athlete's sample.

So these are all the -- these were all the actual checks that they ran.

Q. Now, let me interrupt you. And then we'll talk about controls, and then I'll ask you -- I know I bit off a lot when I asked you the basis for your opinion. So I'm going to let you -- I'm going to let you go back to other bases -- but let me ask you some questions, first, about the controls.

When you talked about what they did to make sure that the IRMS instrument itself was performing properly, what do you mean by that?

A. Well, the IRMS instrument itself -- its job is to measure the isotope ratio of carbon dioxide gas which is entering the

machine, so it's a box. CO2 goes into the box.

The machine is supposed to measure the isotope ratio of CO2.

There were standards that are used to establish the fact that it's working properly. If the standards show that the response is as expected, that is, the intensity of the response is not low, but rather, proper, then the IRMS itself is working, at least of adequate sensitivity.

If the ratio, then, between the two isotopes, C-13 and C-12 is as is expected, then that tells us that that box, the IRMS itself, is working properly. That tells us that.

Q. And was that done by the Paris laboratory for both the A and B Samples?

A. Yes.

Q. And was the instrument working properly?

A. Yes.

Q. Okay. Then you talked about, to make sure that the combination of instruments was working properly, I think -- and just tell me if I've got this wrong -- you looked at analytes -- they looked at analytes that

resembled an athlete's sample.

What are you talking about there?

A. I'm talking about a pool of urine that they maintain as a control sample. They run it -- it's a large sample of urine, a pool, that's come from, I presume, a number of different athletes. That would be typical. I didn't audit that bit of it. And they take samples, aliquots, from that pool, and they process them according to the same protocol as the athlete's urine, and they then run it, and they process it. They obtain the three fractions F1, F2, and F3, they process the three fractions, and run them. I believe they ran them before, each of the athlete's samples, and obtained isotope ratios on those analytes in those -- in the blank urine.

And one expects that the interferences, the little things in the baseline that are found in the athlete's urine, will be similar -- not identical, but it will be similar -- that it will be a similarly complex matrix. What we mean by that is, it will be similarly large in mixture of potential interferences in the standard compared to the

athlete's urine. So that's why we typically will run those at the same time.

Q. Did you review the results of the blank urine when it was run with the athlete's urine?

A. Yes.

Q. And were the results of the blank

urine consistent with the historical values that LNDD had obtained for that blank urine?

A. Yes.

Q. And did you go back and verify that data?

A. I looked at it and verified it. I have trouble finding that page right now.

Q. But you did.

A. I did.

Q. Okay. What is the role of what they call the Mix Cal IRMS? Is it the alkanes?

A. Yes, that's right, the alkanes.

Well, that's to establish that the instrument is delivering isotope ratios with sufficient precision; that is, with the expected precision. So they analyze it, once, twice, three times, and the calculated mean and a standard deviation, and the standard deviation

should have some particular value. And if it's above that value, that indicates there's a problem. And if it's within specification, it indicates that the instrument is working for well-resolved peaks.

Q. Okay. Let me ask you to take a look at an exhibit -- I'll go back to these later.

And did you look at the standard deviations for the alkanes that were run with Respondent's A and B urine?

A. Yes.

Q. And were you satisfied that those standard deviations were adequate?

A. The A and Bs were -- was fine, yes.

Q. Okay. How about the mix cal acetate? What does that do?

A. If you look at the isotope ratios associated with the mix cal standard, you'll see that they're fairly similar. But we're going to be measuring isotope ratios over a range. So the mix cal acetate, for one thing, contains four different steroids which are of similar structure -- they're steroids, and they're derivatized steroids -- to be analyzed that will be analyzed in the athlete's urine.

And also, they have isotope ratios that are over a range, that is, the range over which we're actually interested, and so those -- and so those standards establish whether the instrument is delivering accurate results, that is, results that are expected -- highs are high, lows are low -- and things that should be different are different and so forth. And if that's working, then one expects that the instrument is delivering accurate and precise isotope ratios for well-resolved peaks.

Q. And did you review the Eurofins values for the four steroids in the mix cal acetate and compare those to the Sample A and B results?

A. Yes, they were fine.

Q. And they were in an acceptable range --

A. Yes.

Q. -- in your view?

How would you compare the number of controls that the Paris laboratory ran with what you would usually see?

A. Okay.

I run, in our laboratory -- our

laboratory is a research laboratory. We are not a testing laboratory, an accredited laboratory.

We run a number of controls that are similar, probably not as many as they ran. In fact, I'm going to say it's fair to say that we don't run as many as they run. And when I looked initially -- well, before I looked at them, I was prepared to see fewer controls than they ran.

But I -- I was favorably impressed -- very impressed with their controls. I felt there were controls at virtually every level that one might insert controls into such analysis, so I was very favorably impressed by it. I didn't expect to see as much. I will also say there were redundant controls. The controls were more than -- there were more than one control.

Q. If -- sorry.

A. -- no, sorry.

Q. If there would have been a pressure problem, operating pressure problem, with the instrument in either the A or B Sample analysis, would that have been reflected in the controls?

A. The way one establishes proper

operating pressure for an isotope ratio mass spectrometer is to run these sorts of controls, particularly controls like the calibration controls, not necessarily the urine controls. And to establish that, the instrument generates accuracy and precision that is within the expected range. That is how you decide what the -- what the accurate pressure readings ought to be.

And so were, the calibrated values -- excuse me -- were the standards to give either precision that was outside of the expected range or accuracy which is outside of the expected range, pressure is one of many, many parameters that one would look to to start troubleshooting the instrument. So with all that context, I would say that the standards should indicate -- would, not should -- strike that -- would indicate if there were a pressure problem, and they did not indicate that.

Q. Okay. And when you're talking about results within the expected range, were these results all within the range that you would expect if the instrument was operating properly?

A. Yes.

Q. Same question for instrument maintenance: If there would have been a maintenance problem, would the controls have shown what they showed in this case?

A. And same answer, but I'll make it shorter, which is just to say, you run the controls to determine whether the instrument is running properly. And if the controls show that the instrument is running properly, then -- I'm not sure what to say about maintenance. I mean, maintenance is something you do preventatively to ensure that there are no problems; but if the instrument is running, it's running.

I have an old car at home, and sometimes I don't change the oil on the right schedule, but it still runs. It still gets me from Point A to Point B, so -- and that's a similar test.

Q. Let's talk about linearity first.

Could you explain what it is?

A. Linearity refers to the property of an isotope ratio mass spectrometer whereby the isotope ratio measured by the instrument is identical, within experimental error, and independent of the amount of material that is

admitted into the machine. That is what linearity is. In other words, the response is linear, to draw a graph between the material put into the machine and the response from the machine -- the backwards response versus the material, you get a straight line.

Q. Have you reviewed linearity data from LNDD or the Paris lab, sorry.

A. I did. I reviewed linearity data.

Q. In your opinion, was it acceptable?

A. Yes.

Q. And would any variations in that linearity data have made -- that you saw -- have made any difference in the delta/delta -- any appreciable difference in the delta/delta values reported?

A. No.

Q. When you talk about experimental error, is that the same things that we've heard referred to of as uncertainty of measurement?

A. Yes, measurement uncertainty. That's what we mean, measurement uncertainty. The way we talk about it is, we use the word "error," but that simply means measurement uncertainty.

Q. There are documents in this case which show that the Paris laboratory's measurement uncertainty for a single measurement, based on a mean and two standard deviations, is 0.5 delta units, and for a delta/delta value, that's 0.8 delta/delta units.

Is that what you would expect, or is it different than what you would expect in this kind of analytical process?

A. That is consistent with what I expect.

Q. You talked about the mix cal acetate steroids being derivatized like the athlete's sample. Could you explain to me what that means?

A. Steroids have a free hydroxyl group, and that hydroxyl group can give them properties, when analyzed by gas chromatography, that are not quite optimal. We analyze underivatized steroids in our lab, but some people choose to derivatize with acetate. So acetate -- acetic acid is the same stuff as in vinegar, and we will -- or it's a very common step to make a reaction between acetate and the steroid in order to make, well, it's an ester, and that ester has a little bit nicer properties when analyzed by gas chromatography than the native.

Q. And so that would be -- in the case of Fraction 3, it would be added to the A diol, the B diol, and the reference compound, the pregnanediol?

A. Correct.

Q. And then when they come up with corrected values, what are they doing there?

A. The acetate did not come from the athlete's body. The acetate came out of a bottle bought from a chemical company somewhere. So when that acetate is added to the sterol and analyzed, it emerges from the gas chromatograph, enters a combustion unit, and is combusted up to CO2 with all the same carbons as the sterol. You can't tell them apart. They're all the same.

And so we apply -- I'm sorry -- so then when we analyze the isotope ratio of that plug of CO2 in the isotope ratio mass spectrometer, we get a number that corresponds to the entire molecule.

What we will typically do is perform

the whole experiment again; that is, we'll derivatize the steroid, But this time, we'll derivatize the steroid that's been precalibrated. We know the isotope ratio of the steroid. We perform the reaction with acetate, an unknown isotope ratio, and then we analyze that for its total isotope ratio.

And then by a simple mass balance, we're able to then calculate the isotope ratio of the acetate. We can then use that number to -- apply that number to correct the isotope ratio of unknown steroids later on from the athlete.

Q. And in reviewing the Paris laboratory's documentation package, could you tell if they did that?

A. They did it. They applied a calculation to do the correction, and I reviewed the material on how they come up with the number that they used for the acetates, which is around minus 53. And my -- I have two comments on that: One is that they seem to do it -- seem to do it -- they did it the right way, just the way I just described. The second thing that's important is, I went through and did a

calculation to determine how sensitive the delta/delta number is to that correction; that is to say, suppose they did it wrong.

Suppose they were off by 5 per mil or 10 per mil. I guessed that they might be off by 30 per mil, which is astronomically off. That would be a big problem if they were off by 30 per mil. And it made no difference to the final results that were calculated, so --

Q. Why is that?

A. Well, delta/delta brings up a point that I suppose will come up in other contexts.

Calculating a delta/delta actually is a quite robust way to do a measurement. The reason is that even though deltas and even upstream from that, isotope ratios vary, any sorts of uncertainties, systematic uncertainties, that apply equally well to both partners in the delta/delta, will be corrected for in that subtraction. So really, quite extreme values are required to actually move that delta/delta.

Q. Let me see if I understand that right. Is that because you're subtracting the acetate from both the pdiol and, for example,

the adiol, and so, if your calculation is a little off, it affects both sides of the equation?

A. That is correct. It doesn't affect them identically, but it affects them very close. And so -- so it's -- that's why we refer to that as "robustness" in the analytical world. That is the results are "robust" to this particular step.

Q. In performing IRMS analysis, is there any need for you to calculate the specific gravity of a sample?

A. No.

Q. Let's talk about chromatograms, and this was a -- and I'm sorry -- a long interruption to you finishing your answer on the basis of your opinion that the results are reliable. Before we go to chromatograms, is there anything that you wanted to get to?

A. I don't remember.

Q. All right. Sorry.

Let's talk about the peaks and the chromatograms and the background of -- in Sample 995474.

Have you reviewed those?

A. I looked at them carefully, yes.

Q. Okay. And did you focus on one fraction more than the others?

A. F3, which was the important one, the one that has us here.

Q. Okay. In reviewing the Respondent's brief, one of the complaints that they had was that the chromatograms for the A and B Sample didn't have good symmetry. Would you agree with that, and does it matter?

A. I thought the symmetry was

reasonable, and what I mean by that is that it wasn't perfect; it wasn't the most perfect that I've ever seen, but it was certainly within the sort of symmetry that I expect, that's Number 1.

Number 2, you asked me if symmetry matters. In and of itself, symmetry has no bearing on isotope ratio calculations. We routinely run peaks that are -- that front significantly -- fronting is a peak that comes up sort of like a ski slope and comes down very sharply, or peaks that come up nicely, and then tail -- not forever, but tail a little. And for well-separated peaks, that's not an issue. So symmetry is just not something that I worry very

much about. It's separation that I worry about.

Q. Okay. So let's talk about separation.

A. Okay.

Q. Can you take a look at Pages 171 and 173 of the documentation package. It's Volume 2.

A. I have 171 in front of me. Do we have a slide?

Q. It's Volume 2 of the exhibits. It's Exhibit 24.

A. 173, you said?

Q. 171 and 173.

A. I'm sorry. USADA 173. 171 --

sorry. Yeah. Okay. I have it right there.

Q. What are we looking at at 171?

A. 171 is a GC/MS run -- may I have your laser pointer?

Q. Yeah, you sure can.

A. Thank you.

171 is a GC/MS run which was shown this morning, before lunch, and it is of Sample 995474, Fraction 3, so it's exactly the sample that is of interest here. And there are three peaks of particular interest. There is the

5-beta, the 5-alpha and the pdiol, which is the ERC --

Q. Okay. And then, could you tell me what 173 is?

A. -- 173, which I think is also here somewhere -- but in any case, 173 is the GC combustion version of that same chromatogram, that same sample. Sorry, the GC combustion -- IRMS. Sorry. We've been calling it the IRMS. I apologize. The IRMS version of that.

Q. And what are the three peaks of interest there?

A. Same three.

Q. And how would I know --

A. 5-alpha, 5-beta --

Q. And how would I know which is which, because they just have numbers at the top.

A. Well, they have retention times that match on the previous -- with the previous GC/MS, and the GC/MS delivers structural information, like aliquots and so forth, that tell us which is which.

Q. So by the numbers at the top, can you identify those for us? Like which is the 5-beta?

A. This one, 5-beta, 5-alpha, pdiol. Is that what you're asking me?

Q. Yes.

A. Good.

Q. Could you go back to 171, please?

A. I could.

Q. Let's talk about peak separation for the peaks for 5-alpha and pdiol. Let's deal with pdiol first. Do you want the copy in front of you?

A. Pdiol first. I have that one in front of me. This one, yeah.

Q. And if you want to have a hard copy, I can find it in a binder, so you don't have to squint.

A. I have to squint anyway.

Q. Okay.

A. So there's the pdiol. That looks well separated to me. Did I answer the question?

Q. Yeah.

A. This morning -- do you want me --

Q. Okay. And what you're looking at in front of you is the third page of the fourth page of your handout?

A. Mm-hm.

Q. It says 171 at the bottom?

A. Yes, that's right.

Q. Okay. Now about the 5-alpha?

A. Okay. So we discussed this morning the separation associated with this. We discussed a little bit -- or there was discussion a bit about whether these baselines were very flat and whether there are peaks here that are disappearing, disappearing peaks.

So considerable amount was made of that peak in the center there, between 5-beta and 5-alpha, which is quite small, compared to these other two, and I'll have more to say about that in a moment. And then, if you really squint, you might see a little tiny peak in the front there. It's not much of a peak, but I would agree that there's some tiny, little thing there --

Q. On --

A. -- at the leading part of that 5-beta.

Q. Okay. How do you know whether there

is good separation for the 5-alpha peak or not?

A. In the GC/MS run?

Q. In the GC/MS or the IRMS run.

A. The answer's a little bit different for the two. For GC/MS -- well, there's a lot of answers for GC/MS because there's another dimension of information here with the masses that are obtained. So the masses are obtained at every one of these data points, so it's possible to resolve things in the mass spectra -- in the GC/MS mass spectra that are not possible to resolve in the IRMS data.

So, this I would call pretty good separation, particularly for GC/MS. There's no reason to go to greater lengths to do separations, in my experience and judgment, than what I see here.

Q. Okay. Then let's look at Page 173 which is the IRMS --

A. Right.

Q. -- chromatogram.

A. Now, this, I think, is going to be easier. And I'll address this directly, and then we can move on to the other graphic that I have.

So this was already addressed, and we were looking in this region here. And the question was: Are these peaks resolved from one another, and are they cleanly resolved into the baseline? And when you say "baseline," we generally are referring to the noise associated with the baseline on either side of the peak. That's what we're talking about. Because we know always, always, always, always there are other molecules that are entering the combustion furnace whenever the analytes are entering the combustion furnace. That is always happening. So we have methods for dealing with that. And we will -- we can talk about that in a bit.

And I see a pretty good resolution over here too. I can talk in more detail on that if we look at the graphic I have for 4, 5 May, if you want me to do to that next.

Q. Okay.

A. Okay. So this would be -- it's the first one.

Q. The first graphic? It's the first page of the handout.

A. First page.

Q. Now, let's go through, and could you tell us what we're looking at?

A. Yes. So this is the F3, Fraction 3,

on the B Sample, and this came from the May 4, 5, reprocessing documents. It's Page 101 in the pack that I have. And it is the B Sample.

And the reason I chose this one was not because it was any better or worse than the A Sample, but because, when we made this ratio plot here, and I will tell you what that means here in a second, we blow it up so that one could see it. We expanded it so one could see it a little bit better, so that's why it's a little better for illustrative purposes.

Q. And let me interrupt you so that we're clear.

The delta numbers that you see at the top of the different peaks. Do you see what I'm talking about?

A. I'm pointing to them.

Q. Okay. It's my understanding that those would have been affected by any adjustments that the operator made in locating peak start/stops and baseline. Am I right on that? The delta numbers?

A. Yes.

Q. The actual chromatograms of the peaks, does that come straight out of the

electronic data files?

A. Yes, there's no manipulation there. Those are representations of exact data that came from the instrument on the original analysis.

Q. Okay. And what is the figure above that?

A. This here?

Q. Yes. What is that?

A. One of the things we often do in isotope ratio mass spectrometry -- we don't always do it, but we often do it -- is we clock the ratio of the, roughly speaking, the carbon-13, the carbon-12, the instantaneous ratio that is emerging from the gas chromatograph into the isotope ratio mass spectrometer, plot that above the actual chromatogram, and that was not included in the original doc, I don't believe, but it is included here now.

Q. Was that included in the documents that were generated from the reprocessing?

A. Yes, it certainly was. This came right from the reprocessing. That's exactly right.

Q. Okay.

A. Okay? So there's -- in a way, there's a curious fact about the way the gas chromatography works with isotopes, which is that the molecules that include a C-13 emerge from the GC a little bit faster than the molecules that have all C-12. So any particular molecule -- it's sort of silly to talk about an isotope ratio of one molecule when you have roughly 20 carbons -- that they are all C-12 or one C-13, or two C-13s. The ones with C-13s elute sooner. And so what you end up with is overlapping peaks between the C-13s and the C-12s.

And so if you plot the instantaneous ratio -- first, I'm going to move to over here.

First, let's say, for the 5-beta, the ratio is enriched in C-13. This would be the instantaneous ratio, and when the peak first starts to come off, it's enriched in C-13. And then as the C-12 peak starts to elute and the C-13 finishes elution, it swishes down. It swishes, and now it's richer in C-12, so it seems depleted. And then it returns to baseline.

So that's what these ratio traces look like.

So then the question is, what information do we get out of them? Do you want me to answer that?

Q. Let me ask you. That was sort of what I asked in the beginning, so go ahead.

A. Okay.

All right. So one of the criteria I used, and it's important criteria to use, in terms of establishing whether peaks are well separated, besides looking -- and I want to point out here, this region right here is just a blowup of this region here, okay?

So you see 5-beta, 5-alpha; there's 5-beta, 5-alpha. It's just a blowup; that's all it is. I've gotten rid of all this stuff over here and all this stuff over here. It's just a blowup.

So we can argue about whether these are baseline-separated peaks. We can do that if we want, but we also look at a ratio trace. Let's talk a little bit about the way these ratio traces look.

When there's very small amount of

signal emerging from the gas chromatograph, that is only just background material, we see a ratio which is quite noisy. And you can see that there is a black band here, in this region. It's a region that's around here someplace where there's nothing coming off. It's sort of this black band right here. That tells me there's no peaks coming off of this column.

But when a peak comes through -- and I'm going to point to this one -- When a peak comes through, you see there's background, there's nothing there, a peak comes through, positive, negative, and then it returns to baseline. Okay? That's what a well-resolved peak looks like. That's not -- that particular one I just pointed to is not the one that we're interested in.

But we are interested in this one, the 5-alpha right here. And what I see is, I see baseline right there. I see noise right there; that's baseline. We see a peak come in, go out, and then it returns to baseline. I see a band of noise there, a band of noise there, and that is another confirmation for me that that is a well-separated peak.

Let me make one other comment. There's reference on the last slide to a disappearing peak. There's two reasons I can think of of disappearing peaks, but without getting into that, if you look carefully down here -- and this was pointed out this morning -- there's no peak down there. You can't see a peak down there, but you can see a peak right there. I can see the peak right there.

And if you notice, here's the 5-beta, up it comes, and down it goes, and back up again. But notice it doesn't return right to baseline right there. You have another little tiny thing that goes up and comes down and comes back up; that's that little peak. It's there. You just have to know where to look for it. So that peak has always been there.

Now, you will also notice that that peak is so tiny that you have noise bands -- you have a noise band that's superimposed on it. Even as it goes positive and negative, you see noise, noise, noise, noise, noise, noise, noise back. So it's timing.

Q. Would that timing peak have potentially affected the 5-alpha result?

A. Not the 5-alpha result. It's resolved from the 5-alpha result.

It might have had a trivial influence on the 5-beta result, but I believe from the -- from what I see here, and what I see here, that its effect would be within experimental error.

Q. And the 5-beta result wasn't positive anyway?

A. We're not discussing the 5-beta result. That's right. The 5-beta result was not positive. The 5-alpha result was positive, and that is a very well-resolved peak.

Q. Okay. Does that chromatogram in any way tell you that what the Paris lab was doing was bad chromatography?

A. No.

Q. Okay. While we have this up, there were a series of questions asked of Dr.

Shackleton about sloping baselines.

First, is this a -- well, I'll ask it in one question: Is this a sloping baseline that would change delta/delta results?

A. Not in my experience.

Q. Okay. So could you explain that?

A. Yes, as I alluded to earlier, there's always carbon emerging from various sources from the gas chromatograph into the combustion furnace and then on into the IRMS. We are used to seeing background, and, in fact, that background you see there, it's a sloping background, but even what's under the sloping background, it's not just background; there's actually an arbitrary -- what we call an arbitrary offset, so just an electronic setting that's included in that plot there that we see.

The procedures that we use to draw baselines underneath -- underneath peaks are intended to remove those -- I won't call them interferences. They're not interferences -- but they're intended to remove those other contributions, because they're always there. So it's not a matter -- not a matter of removing interferences. You can't remove those. They're there all the time.

And with respect to sloping baselines, by the definitions that we have been introduced to in the last brief and here, this would be an example of a sloping baseline, but I'd like to go to the next slide.

Yes, okay.

So one of the properties of isotope ratios, we could, in principle, measure isotope concentrations. We could talk about C-13 concentrations, but we don't; we measure ratios; we measure C-13 divided by C-12. We measure ratios.

And the reason we do that is, again, for this property of robustness. And so, if you look carefully now at -- again, at this baseline. We're looking at the same plot, I believe. I can put the same one up there. So, you see nothing, nothing, nothing, nothing, and then there's a switch here of a valve or something or other, or a back flush, and now you start to see background and this sloping baseline.

But look carefully, now, at this red line that I've drawn right across here. This is the instantaneous -- this is the ratio trace, and you can see that the ratio is solid right across there. That is a straight horizontal line. And that runs straight across and without sloping. It could slope like that, in principle, I suppose. It could do that. It could do that. It doesn't. It's horizontal and straight, and that is one illustration of how the sloping baselines really don't make very much difference.

And they really don't make a difference; not in our hands, they don't. And I don't believe that there's any slopes associated with these calculations that would cause them to be in error.

Q.   Okay. There was a point made in Respondent's last brief that talked about the 8 small peaks following the 5-alpha peak.

A.   Mm-hm.

Q.   First, would any of those eight small peaks that show up on the chromatogram, of the GC/MS chromatogram, have any influence on the 5-alpha peak?

A.   No, they wouldn't.

Q.   And you can do that. You can go back and look at Page 171?

A.   I can. And it's well- -- they're well separated, so their value -- I can flip back to the last one.

I presume those eight peaks -- I think I might have counted eight, but anyway, are they little peaks here, or are they little peaks here? I can't remember.

Q. They were after 5-alpha.

A. 1, 2, 3, 4, 5, 6, 7, 8. I don't know. I guess there's eight in there. Maybe there's eight in there. I'll concede there's eight.

Q. Any of those have any effect on 5-alpha?

A. No, they're well separated. Their only value in any discussion would be a diagnostic value, because they show us something that's wrong, for instance.

Q. Let's take a look at Page 173.

A. So, this is the region that they elute, if I'm correct on that. I think it is.

Q. It is?

A. And so it's not very well blown up, but I see a few of them in there. Yeah, I see a few of them.

Q. Does the fact that you don't see them as clearly in the IRMS chromatogram as you do in the GC/MS chromatogram suggest to you that there's anything wrong with the IRMS chromatogram?

A. No, it doesn't. The GC/MS is a molecular mass spectrometer, and a molecular mass spectrometer generates signal by ionizing whole molecules and analyzing pieces of those whole molecules as they fall apart.

The IRMS generates signal by burning up whole molecules and always analyzing CO2. The sensitivity for GC/MS in any particular organic molecule -- sorry, I said GC/MS. I'm going to start over.

The sensitivity of IRMS to any particular molecule is directly related to that molecule's carbon content, and so it's actually quite predictable. The sensitivity of GC/MS, however, is very sensitive to the molecular structure of a particular molecule and, as such, it is on an apriority basis, difficult to predict what that sensitivity will be.

And the implication of that is that the sensitivity in -- excuse me -- GC/MS can vary widely. And so, in our GC/MS trace, we might see a peak which just happens to ionize very effectively. And we see it and compare it to the other molecules in the chromatogram. And so we see a peak, but when we go to GC

combustion, it turns out there's very little of that peak in the sample, because it just happened to be much more sensitive in the GC/MS.

So that doesn't concern me. Peaks disappearing into the background in and of itself does not concern me.

Q. Does any of that -- do any of those eight peaks or the difference between the GC/MS and the IRMS bear on the reliability of the 5-alpha or the pdiol results?

A. No.

Q. Okay. Let's talk about the data reprocessing that took place on May 4th and 5th. You were there?

A. I was there.

Q. And was that done under the supervision of the Panel's expert, Dr. Botré?

A. It was.

Q. Okay. Tell me about the first way that the data was reprocessed.

A. I don't remember the order that we did it in. I know we did it three different ways of reprocessing. One way -- we'll call it the first way -- was, I guess we're calling it the manual reprocessing, which is to say that --

I'm going to skip all the sort of the material between getting to the lab and actually verifying the data was on the machine.

Q. That's fine.

A. Given that the data were on the machine, and so one of the analysts sat down in front of the computer, brought the chromatograms up onto the screen, brought one chromatogram at a time up onto the screen, and told the OS/2 software to find the peaks.

She then inspected the assignment of peaks starts and stops, in a manual way. That's the manual part of this. She inspected the peaks start and stops to establish whether those were properly assigned by the automatic software, according to criteria which is outlined in their SOP, which we've looked at.

Q. And was that out on the table available for everyone to see during the reprocessing?

A. It was out on the table. It wasn't out all the time, but it was right there, and you could look at it, and it was pulled out and opened and so forth, and it was in French. So, if you forgive me, I don't speak that language,

but the pictures I get. So I think I understand what's in there.

And so now an important thing to understand is that, first of all, we've used terms in a loose way here, at least from my perspective. Namely, we talk about sort of manually defining backgrounds. Well, what we manually defined was the limits of the peak, but the machine manually -- the machine automatically, then, takes that input and calculates the background, subtracts that out, and determines what the actuaries of the peak are and then delivers a result.

For what I saw, and I was there for the whole time, I saw each chromatogram come up once. That step, which I consider to be quality control; that is, to establish whether the automatic software has actually chosen the peak limits properly. I saw that done once. The peak limits were either adjusted or not adjusted once. They were mostly adjusted -- by the way, she didn't leave most of them alone -- she adjusted most of them. And then an isotope ratio was calculated, and that's it.

So we didn't calculate an isotope

ratio, and say, I don't like that one, I'm going to go back and move around a little bit more, back and forth and back and forth. There wasn't any of that stuff. And furthermore, I looked carefully at what they were doing, not worrying about what was in their SOP, but just watching what they were doing.

And I was right over their shoulders. And I felt that what they were doing was very mechanical and identical from run to run to run. They would check the ratio trace to determine whether the peaks start and stop were in a region where the isotope ratio was that of the baseline. I think I pointed that out about that little peak. I'm sorry, I should have pointed it out.

Q. And can we go back to --

A. Let's go back to the first slide.

Q. Let's go back to the first slide, so we can talk about what a ratio trace is.

A. Right. So let's talk about the 5-alpha, because that's what we really care about. And so if you have really good eyes, you can look down there, and you'll see some little vertical lines at the bottom of that 50-alpha

there. And those would be what we call the limits of integration.

So the question that these guys would be checking is, should that go a little bit this way or a little bit that way? That would be the question. So how do they determine that? By the way, they can see it a lot better than we can as it's blown up on the screen.

What they would do is look at the ratio trace, and they'd say right. So, here's where the background is. You saw that on the slide that I drew a line through the background. So we know the background is the same for the whole chromatogram. So they move it around. Here's a 5-alpha. And they make sure that the limits of integration were -- there would be the peak stop, for instance.

I don't know where the peak stop was for sure, okay? So, I don't know for this particular one but for all the ones that I saw -- I didn't keep track of them -- they always placed it at a ratio that corresponded to the background ratio. So it would be there, that would be the end, and that would be the beginning. Somewhere there would be the

beginning. And that's the way they did it. And they did it every time the same.

Q. How do you know -- how did they know what the ratio was?

A. Aha.

Q. We can see it there, but --

A. A little box -- and this is not exactly what the screen looked like; it's not far, though. So if you can imagine, this is the screen right here. This is pretty much the screen as a matter of fact. So they do a little drop-down menu thing here, and then a box would pop up right here, a box. And I'm sorry I didn't make a copy of that box so I could show you, but I don't have a copy of it.

And the box had the instantaneous ratio, wherever the cursor was sitting. And so they could monitor that as they moved it back and forth. And I said it once; I'll say it a second time: I consider that a quality-control step. That is to say, one's determining whether the automatic software has chosen the limits of integration properly.

Q. And I'm not sure I understand. How did they use the box to identify a peak start or

stop?

A. Okay. Let me try it again. So imagine a vertical line here, a vertical line. And I can move the vertical line back and forth along this ratio. And anyplace that I move that vertical line, a little number down here in the box will tell me what the instantaneous isotope ratio is there. So, for an example, if I started in this spot right here, which is baseline, and I moved it over to, let's say, where there's a peak here, the number would go way up.

And then I keep moving it over, and the number would go way down. And then I keep moving it over, and the number would come back to baseline. And so what they simply did was ensure that we were operating at baseline, that the limits of integration had baseline isotope ratios, beginning and end.

Q. Based on the numbers in the box?

A. Yeah, based on the numbers in the box.

Q. Not just their eyeballs.

A. Based on the numbers in the box and their eyeballs.

Q. You call it quality control manual integration, whatever you want to call it. Is it common in IRMS work?

A. I insist we look at all of our chromatograms to ensure that our software is working properly, and I believe it is common. If you don't look at it when the data comes rolling off the machine, then you end up looking at it at some other time, like now.

So you have to do quality control at some point, and so doing it at the beginning is a perfectly routine thing.

Q. Okay. Let's go back to your PowerPoint and the last page. And this is based on the standard operating procedure that's been produced. Tell me what that is showing us.

A. So this is a reproduction of the standard operating procedure that was approved, I gather -- well, this is certainly the procedure they were using. And what it illustrates is the right way and the wrong way for peak start and stop to be set, and so this is a nice noise-free blowup of a peak.

And so you'll recall that I said that the C-13s come out first, so the ratio of the two goes positive. Then the C-13s are emerging also, and then it goes negative, and then returns back to baseline, okay?

So a necessary condition for a peak to be finished is that should be at baseline after and, of course, before. And what this illustrates, is -- I believe, this says "correct" in French, and that says "not correct," and it illustrates that the peak's start and the peak's stop should span the range of the whole peak. This is -- that's the ratio trace up here, and this is the 44 trace, the absolute signal trace.

Here's an example down here where the limit of integration is set too far into the peak. And you'll see there's an X here, which sets a -- where the software -- and it just illustrates the, I guess, software guessing poorly as to where the baseline is, and so, as I understood -- my observation of what the technicians did was, they would delete something like that and move it back for instance. If they found something like that, they would move it back to a region which was baseline.

Q. So they were following the SOP?

A. Yes.

Q. Let me ask to you to look at the third page of your PowerPoint. It's the excerpt from Respondent's supplemental brief.

Where it says, "As was made clear during the analysis of the EDFs, LNDD did not use OS/2s automatic subtraction program, and instead performed manual subtraction."

Is that correct?

A. As I alluded to, they set the limits of integration, and subtraction was automatic. So the answer to your question is no, that's not correct. They performed a manual quality control stuff, and you can call it -- subtraction is not accurate.

Q. Is what they're doing there, is that going back and changing data, or is that just a normal part of data processing?

A. It is a normal part of data processing, and particularly in this laboratory, because when they established their errors -- sorry, their measurement uncertainty -- when they established their measurement uncertainty by measuring 40 or 70 or whatever number of measurements they might make of their blank

urines over a period of a month or two months or three months, this procedure is part of that, part of that standard operating procedure.

So one expects that on uncertainty,

at least some of the uncertainty is associated with the manual quality control step will be -- will be included in their uncertainty estimates. So it most certainly is what they normally do.

Q. And then the next sentence: "When the results were rerun, LNDD's technician achieved entirely different results." Is that true for the 5-alpha peak diol?

A. It is -- no.

Now, in the sense that the numbers are not identical, it is, of course, true; and we can all see that. The numbers are not exactly the same, but what we care about is within experimental error. And personally, I think, given the circumstances with three people looking over the technician's shoulder, maybe her subjectivity was a little bit nervous. I don't know; I shouldn't speak for her -- but in any case, I don't think that they were an entirely different results, and certainly the delta/deltas have shown nothing different as you

alluded to in your opening statement. They all came out as positives.

And so I don't really see that as a meaningful statement. It may be meaningful in some other sense that I haven't detected, but it's not, in the usual sense, what I think about.

Q. And then the next --

A. The most important sense, I should say.

Q. And then the next comment in the brief that "they used a completely manual approach."

Is that true?

A. Well, that's not what I described. They inspected the software assignment. They adjusted, and then they sent it back to the software for another calculation, and that -- so that doesn't sound completely manual to me.

And in fact, since we're talking about manual, there were discussions, brief discussions, prior to going to LNDD on the 4th and 5th of May, to possibly do completely manual calculations. And it was decided against. So when I think about manual calculations, I'm

thinking about taking the data arrays, moving them in Excel, adding things up in a certain way and without any software at all, so that one could lay it out and show exactly what's happening. But that's not what we did.

Q. When the technicians were reprocessing the data, either Cynthia or -- for the A sample, or Claire for the B sample, would they have known when they set a baseline or a peak start/stop whether that was going to make a delta value bigger or smaller or how it would have affected delta/delta?

A. The answer is no, they would not have known whether pulling the -- moving the limits of integration one way or the other was going to move things one way or the other. They would not have known. They set them according to the SOP. They set them very mechanically, to my eyes, and then they made their calculation, and they didn't go back. They simply did it. There was no way for them to know. Unless, of course, they'd memorized something eight months earlier.

Sorry. I had to throw that in.

Q. You heard that -- Mr. Suh talk about

they did it 20 different ways. Did you see them --

A. I didn't understand that. I didn't understand. I saw them do it once for each of the analyses, so I just didn't get it.

Q. Okay. The data was also reprocessed with no background subtraction and then only the automatic background subtraction. Whose idea was that?

A. It was done at the insistence of Dr. Davis, the expert for the other side for Mr. Landis, to do those two analyses -- to do those two procedures.

Q. Did either of those procedures make any sense to you?

A. No.

No. For reasons that I've already mentioned, there is not only background carbon that is entering the IRMS all the time, when analyzing an entry into the IRMS, there's also arbitrary offsets that are in the electronics. And so to start with, ignoring the background would actually add in these real -- these instrumental artifacts into their calculation. So that struck me as a bad idea.

But I have to tell you, I have not -- my intuition on exactly what was going to happen, wasn't very good, because I never did anything -- I never did that before, because I never would have thought of doing that before, because it doesn't seem like something that would give me a reasonable result. So I just never would have done it. So that didn't seem like a reasonable thing to do, but we did it.

And then the other thing that we were asked to do is completely automated analysis, and there is some rationale to doing that. But as I say, you're skipping the inspection step. And so we did it. And the results -- the ultimate results seemed to not make any difference for the delta/deltas.

Q. The data was also reprocessed on MassLynx, but before we go back -- go to MassLynx. As I've looked through the reprocessing data in the, we can call it quality control or manual approach, I've noticed that while the differences for the 5-beta 5-alpha pdiol are within what one might expect for uncertainty or experimental error, there are some big differences in some of the other

metabolite reference compound combinations.

Would any of those differences affect the reliability of the 5-alpha pdiol combination?

A. Those are independent measurements, and so in terms of them directly affecting them, the answer would be no. I will stop there. No.

Q. Did any of those other measurements cause you to doubt the reprocessing 5-alpha pdiol results?

A. No, they did not.

Q. Let's talk about the reprocessing on MassLynx.

MR. BRUNET: Mr. Young, I don't want to interrupt you, but I will. We'll call a 15-minute recess, if that's okay with you.

MR. YOUNG. Thank you.

(Brief recess taken from 3:20 - 3:43 p.m.)

MR. BRUNET: Could everyone please sit down?

I'll remind all the parties that we are scheduled to end at 5:00.

And Mr. Young, it's still your witness.

Q. (By Mr. Young) Okay. Let me direct your attention to the reprocessing of the electronic data files on the MassLynx software. And I'm going to only ask you a question about one data point, and that's this last entry for the 5-alpha B Sample blank urine which is 3.66. Was there anything unique that happened about that particular data point?

A. Yeah, that was a unique run through the MassLynx software. What we were doing was transferring data from one computer to another, and really one operating system, and from one program to another, which is, if anybody is going from -- well, contemplating going from XP to Vista, and having all your files work -- that's kind of the idea, that you are concerned about things like that.

And if memory serves, there was a single point, I believe that was it: That MassLynx did not process properly or at least it didn't process the way it processed the others. And at least twice, Dr. Davis, the expert for

Mr. Landis, said that he was happy to pull that one out, but I'm a little surprised that it's still there, but there it is.

MR. YOUNG: For the Panel's benefit, and the record, this is a table from Page 22 of Respondent's last brief. It's their response brief on the electronic data files.

Q. Let me have you look at Exhibit 107.

A. Oh, I get it. These big books here?

Q. Have you found it?

A. Yes, I have.

Q. Starting at the second page of that exhibit, there are a number of figures labeled 22 through 30.

A. Mm-hm.

Q. Have you reviewed the data points in those figures?

A. Yes, I did.

Q. The squares, the triangles --

A. Yes, I did, mm-hm, yeah.

Q. -- and the circles?

A. Mm-hm, I did, they're -- correct.

Q. Have you also reviewed the documentation packages of the ten samples that were analyzed starting on April 16th?

A. I did for, I think I said, two or three hours, so, yes, I did.

Q. Okay. And what did you look at

specifically for those -- in those documentation packages?

MR. WEISS: Objection. This is the second sentence of the title, "Must be within .05 for at least three out of four alkanes."

That is a subject to our motion to strike on this exhibit. There's no SOP provided that listed the acceptability criteria.

MR. YOUNG: I can actually tell the Panel exactly where they could find that exhibit. It is on -- let me take one second.

MR. YOUNG: Let me take one second.

MR. MC LAREN: Exhibit 107.

MR. BRUNET: Mr. Young, I believe it's Exhibit 107.

MR. WEISS: Just to clarify. I'm not asking for the exhibit. I'm just saying that it's part of our motion to strike.

MR. YOUNG: I understand, and we can give the Panel the cite where they can find that reference to three out of four.

MR. CAMPBELL: Mr. Young -- Richard -- Mr. Young, does this come from the LNDD lab?

MR. YOUNG: No, this was prepared

directly from the data that was produced by the LNDD lab. That's why -- for the record --

MR. CAMPBELL: Where does the standard come from? The standard deviation must be less than .05 percent? Is that from a protocol?

MR. YOUNG: Yeah, it says -- well, if you would look at Page 174, of the doc pack which is in Volume 2. It's Exhibit 24.

MR. WEISS: But that's part of the doc pack. Is there any SO- -- I mean, there should be an SOP, you would think, that would give the basis of that portion of the doc pack of which was not provided to us. And as per our agreement, in particular to Number 2, in paragraph 5, it should be stricken.

MR. YOUNG: Well, first of all, there is no -- if there was a document, and we didn't produce it, then he'd be right. But there is no such document. And the plus or minus 0.5 percent is clear on the bottom of this document. It's also clear that you have to obtain the value for three of the four alkanes.

We can go back to that. It's down at the bottom right.

And if you wanted me to find the uncertainty study, where the 5 percent comes from, and again, it's three out of four, I could -- if we wanted to take the time, I could find that for you now too. But my simple purpose with this witness was to verify that the figures came from data that was in the record.

MR. WEISS: Well, how -- I'm sorry.

MR. CAMPBELL: Go ahead.

MR. WEISS: I was going to say, if Counsel is willing to represent to this Panel that that is the only basis for such a statement is this statement in the doc pack for Sample A or Sample B, then that's acceptable.

MR. YOUNG: Well, and there is such a statement also in the calculation of uncertainty, same thing, three out of four.

MR. CAMPBELL: And both of those were produced already?

MR. YOUNG: Right, a long time ago.

MR. CAMPBELL: So...

MR. WEISS: Okay.

MR. YOUNG: Okay. May I go on?

MR. BRUNET: Please proceed.

Q. (By Mr. Young) All right. So, we

were talking about the analysis of the samples that took place on the 16th of April.

A. Mm-hm.

Q. And you looked at those?

A. Right.

Q. And when you reviewed those documentation packages, what did you focus on?

A. The most important data that I saw in those documents was the graphical representations of the chromatograms and the baselines that the software had automatically run for the positives up there, for the yellow, the yellow guys. So I reviewed, -- so I looked at that, and I reviewed all of the 5-alphas and all the 5-betas and all of the pdiols, without regard to sample number first, which I -- to be honest, I don't know what's up there, at this point. So I simply went through all the chromatograms and looked at those three peaks --

Q. And before we get to there, could you tell from those doc packs, whether these samples that were analyzed, the B Samples that were analyzed on the 16th of April, were analyzed using the MassLynx software or whether they had been analyzed on the OS/2 software?

A. They were done entirely on MassLynx. I knew that from the visit to Paris earlier, but they were all on MassLynx, so there wasn't any business about looking at OS/2 software and reprocessing and staying at baselines and all that kind of stuff. So it was only MassLynx.

Q. So when you looked at the positives --

A. Well, first, I looked at everything. I looked at all of them without regard and formulated a judgment on each one, wrote down on a piece of paper, each one, as to whether I thought that the baseline was drawn reliably.

I did find some that I didn't think were drawn reliably. That does not mean that I think that the numbers are unreliable for those; that just means that I would look much more carefully at those later on.

I then went back and compared the positives here to the list I had made and found that all the 5-alphas were reliable, all the 5-alpha positives were reliable. And I apologize for lapse of memory. I don't remember about the 5-beta. That might have been in my suspect.

Q. Let me ask you about the pdiols. Were they --

A. They were all fine. Yes, they were all fine. I meant that the differences -- all the pdiols were fine; all the 5-alphas were fine. So just one, I think, was suspect. And again, I apologize. I think it was that 5-beta that was --

Q. Okay. Well, let me show you the same chromatograms that Respondent showed Dr. Shackleton this morning.

A.   Okay.

Q.   If you would -- I can help you find it. It is Exhibit 86.

And it is at Page LNDD 894, and I think it may still have the yellow sticky on it from Dr. Shackleton this morning.

A.   LNDD 894.

Q.   Correct.

And is that -- this is the sample from the A Team. Is that the one that you were talking about you had a problem with the 5-beta chromatogram?

A.   I'll answer like this: I would have concerns over that baseline that I see for Peak

Number 19, which I believe is 5-beta; and I wouldn't be concerned with the baseline that I see for Peak 20, which I believe to be 5-alpha.

Am I right about that? Yeah, I think that's right.

Q.   And which one is the pdiol?

A.   22, and that one looks fine.

Q.   And let's go back to 107 real quick.

And on the 18th, the 5-beta was negative with uncertainty anyhow.

A.   Mm-hm.

Q.   Now, take a look at Exhibit 87, Page 991. That's another chromatogram that Dr. Shackleton was asked about.

A. Mm-hm.

Q. What conclusions did you draw when you reviewed this chromatogram?

A. Okay. Right. So what I see in this chromatogram -- may I have the laser?

Q. Yeah, sure.

A. Okay. I'm going to pretend people can see this. I think I can see it.

Let's see. 13, right there, is 5-beta, I believe; and 15 is 5-alpha.

Now, the software, down here, has

drawn a baseline, but it has decided there is a peak between 13 and 15. If you look very carefully down there, it drops perpendicular to that baseline and assigns all that area to a peak that it calls Number 14.

Now, that is clearly not correct. This may be a tiny peak there on the tailing side of 13, but that would be another suspect.

Now, I referred earlier to the delta/delta procedure and the -- and ratio calculations as being robust. They're not 100 percent robust or we would be getting perfect numbers all the time. But my experience is that in a situation like this, one might get precise results; one might not get accurate results.

But certainly, I would go back into the software, and I would -- I would deal with that, that Peak 14, which is clearly errantly chosen by the MassLynx software. It certainly is not -- there's certainly something not going on there that is not obvious to an analyst. The software simply failed to diagnose the peak properly.

Q. You would have done that if you were interested in accurately quantifying 5-beta?

A. Correct.

Q. Does that affect 5-alpha?

A. If I inspect 5-alpha, 5-alpha looks to be integrated fine, just fine, because we're dropping way down to the baseline here, and we're right about there. So I would estimate that that's a few percent off of the baseline and that 5-alpha -- the value for 5-alpha should be fine. That's my -- that's what my experience tells me.

Q. Could you go back to 107.

This sample comes from, if you look at that documentation package, comes from July 22nd, and again, we don't care about the 5-beta number.

A. Right.

Q. Is the fact that there may be not good resolution on a 5-beta peak in any way underlie -- undermine the reliability of the pdiol or the 5-alpha diol data?

A. The pdiol is somewhere else in the chromatogram, so that's not -- that certainly is out of the picture.

The only potential interaction between the 5-beta and 5-alpha would be if there

was a major overlap between the two, and I don't see that, and so, I believe that the 5-alpha -- the 5-alpha number is good.

Q. Okay.

And none of this -- does any of this affect the -- of the data -- of the B Samples that were analyzed on the 16th, do they affect the Stage 17 results at all?

A. Do they affect my opinion of the Stage 17 results?

Q. Correct.

A. No. No, they don't. And I'll also say, I have had not too much time to go over this, but I thought these were basically extras. But, I mean, the analyses look okay to me, but I'm going to stand by the Stage 17 results.

MR. YOUNG: I have no further questions.

MR. BRUNET: Thank you, Mr. Young.

Mr. Suh, your witness.

EXAMINATION

BY MR. SUH:

Q. Good afternoon, Dr. Brenna. How are

you?

A. Just fine, thank you.

Q. You had referenced the fact that you received a grant application -- excuse me -- a grant, submitted a grant application to USADA; is that correct?

A. Yes.

Q. And when did you receive that grant from USADA?

A. It was something like two Januarys ago, so there's a press release on the web, so January '06, I think.

Q. I'd like to show -- I guess the easiest way is on the projector. It's USADA 1021.

Can you see that? Does it look familiar?

A. Yes.

Q. It says at the top, United States Anti-Doping Agency Grant Application, and I'll point to it down here, do you see the signatures?

A. Yes.

Q. Do you recognize the signatures?

A. One's mine, and the other's a Cornell official.

Q. And the date of it was October 31 of

2005?

A. That's what it says.

Q. And that the total grant amount was how much, sir?

A. Total was $1,344,737.

Q. And you indicated that was a three-year project, correct?

A. Correct.

Q. And so you're still receiving money from that grant --

A. Correct.

Q. -- from USADA?

A. Correct.

Q. You said you've never testified before in an anti-doping case?

A. Correct.

Q. And that you don't have a WADA-accredited lab?

A. Correct.

Q. And that your lab, in fact, does research, correct?

A. Correct.

Q. I'd like to turn your attention to -- before we start there, we started out today by talking about the quality controls

performed by LNDD, right?

A. Yes.

Q. And I believe at one point, you testified that those quality controls were very impressive, correct?

A. I believe I did.

Q. And then you testified about a number of different substances which were injected, or added, at various times, as part of that quality control system, right?

A. Correct.

Q. I'd like to turn your attention to one particular internal -- excuse me -- standard which was added.

Have you seen this before?

It's a -- for the record, it's USADA 119.

A. You're asking me if I saw it before, and the answer is almost certainly yes. And I don't -- it's certainly not one that prompts memory.

Q. I have the same problem, believe me.

A. I'm sure you will tell me what's important.

Q. Sure. Why don't you take a look,

while you have it in front of you, at USADA 119 all the way through 122. And I will just leave 119 up, because I think you can --

MR. WEISS: It's in Exhibit 24.

A. Exhibit 24.

MR. WEISS: Exhibit 24, Page USADA --

A. What's the number again?

Q. 119.

A. Okay.

Q. I'd just like to turn your attention to -- I mean, what these exhibits show -- and I'll show you where they show you -- and I'd like you to review it -- is basically that the internal standard 5-alpha-androstanol acetate was added to Sample A. And I'll show you the USADA pages where it was added into Sample B in a minute.

But if you could turn your attention, for example, to USADA Page 121, you can see where it says SI 200 nanograms -- that's where the addition of the 5-alpha-androstanol acetate was added?

A. Which page are we on now? You said 121, did you not?

Q. I did. Let me put that up so it's easy to see.

A. I see it now. 200 nanograms per microliter. Code UCI.

MR. CAMPBELL: Would you mind pointing it out?

MR. SUH: Holding it up?

MR. CAMPBELL: Pointing it out?

MR. SUH. Yes. Right here.

Q. (By Mr. Suh) That's the addition of the internal standard for the A Sample, correct?

A. Mm-hm.

Q. Why don't I turn your attention now to USADA Pages 299, 300, 301 and 302, which are Exhibit Numbers 25. And I will show you the same addition right here -- right here on USADA 301 where, again, it says 200 nanograms per microliter.

A. That's what it says.

Q. That shows you that the internal standard 5-alpha-androstanol acetate was, in fact, added; is that correct?

A. I'm not going to answer yes to that, because I'm not sure if that's what it shows. It's in French, and I can't vouch for that.

Q. All right. Maybe you could show -- let me show you what is USADA 354 now. I'll zoom in right here.

Before I ask you questions about it -- again, as you described, the purpose of adding 5-alpha-androstanol acetate is to serve as kind of a quality control, an internal standard, is that right?

A. Yes.

Q. And in line with that quality

control, I mean -- I'll say it, not as well as you would say it, but I'll say it -- that it is a -- they are solutions that are added in order to test this instrument's ability to properly identify and quantify what's added, fair?

A. Close enough.

Q. What part did I miss?

A. It doesn't identify it; it quantifies it.

Q. Quantifies.

And so when we look at what is USADA 354, you see in this column right here, it says at the top 5-alpha-androstanol acetate, right?

A. Yes.

Q. And this is a theoretical value, and

then there are two others: plus 5 and minus 5.

A. Yes.

Q. Do you see that? Can you explain what those are?

A. Well, I understood those to be the established uncertainty limits.

Q. In other words, it's within those uncertainty limits that you -- that the instrument would have to find, quantify -- excuse me -- 5-alpha-androstanol acetate, in order to substantiate the position or argument on it, or whatever, the conclusion, the contention, that the instrument is accurate, fair?

A. Right.

Q. And just for completion's sake, just turn to USADA Page Number 175, which is Exhibit 24, and again, you see the same 5-alpha-androstanol AC. And just to be precise about it, the 5-alpha-androstanol -- I'm going to put them side by side -- looking at these columns, on what pages you just saw, these values, of course, are the same; there's no reason why they'd be different, correct?

A. Right.

MR. CAMPBELL: Mr. Suh, what was the second one?

MR. SUH: The second one is USADA Page 354 is Exhibit 25. The first one -- and the first one is USADA Page 175, Exhibit 24.

Q. Okay. Now, let me turn your attention to --

MR. BRUNET: I'm sorry. Could you repeat which --

MR. SUH: I'm sorry. 354, which is Exhibit 25, and USADA 175, which is Exhibit 24.

MR. BRUNET: Got it. Thank you.

Q. (By Mr. Suh) I would now like to turn your attention to USADA 185, which is Exhibit 24, once again.

Do you recognize that page? Have

you looked at it?

A. 184?

Q. Yeah.

A. No. USADA 184.

Q. It's USADA 185. Excuse me.

A. Sorry.

Q. For the record, USADA 185 is the results of the analysis of the measurement of the internal standards, right?

A. Mm-hm.

Q. Okay?

A. I believe that's correct.

Q. Can you tell me -- can you look at sample A, the F1 fraction?

A. Okay.

Q. Looking at Sample A, the F1 fraction, what do you see as the value?

A. Sample A -- this is sample A, right?

Q. Right. That's sample A.

A. Sample A, and I see -- you're asking me about the internal standard?

Q. Yes, the 5-alpha-androstanol AC, which is being used to measure quality control in order to determine --

A. In the sample?

Q. I'm sorry, let me finish.

-- in order to determine whether or not the instrument is operating accurately in the sample?

A. I see minus 31.64. I believe that's the point that you're referring to?

Q. Right.

A. So, the sample site.

Q. Right.

And is the minus 31.64 within the range that the instrument was supposed to -- LNDD was supposed to identify as within range?

A. Well, I didn't make a mental note of the range.

Q. Here, let me show it to you.

Okay. I'll put it right up here.

Apparently, if you touch the screen, you can make a red line. You apparently can't take it off either; at least I can't.

Look at this.

A. So it's outside.

Q. It's outside?

A. It seems to be outside, yeah.

Q. Okay. So that's one instance in which the instrument failed to properly quantify the internal standard, correct?

A. I think it is correct, yes.

Q. You think it is, or it is?

A. It's correct. It's outside the range.

Q. All right. Thank you.

Looking at the -- there we go, same page. Look the F2 blank. Todd, do you see that red line that you put up there?

MR. THOMPSON: There's a clear tab in the corner of the screen you hit.

MR. SUH: You mean if I write on this thing, it will show up?

MR. THOMPSON: Yes.

Q. If you will -- can you see the F2 blank --

That one right there. Only get to use it for another half an hour, 40 minutes or so. That's good, I like that.

MR. BRUNET: There's many more days out there.

MR. SUH: I thought I was going to be done after this.

MR. BRUNET: You can play with it tonight.

Q. (By Mr. Suh) So you see the other value right there?

A. Uh-huh.

Q. Is that in or out of the -- should I put it up again?

A. Yeah, I can take notes if you want.

Q. No, no, no.

Oh, look at this, though. Okay.

A. It's outside by .02 per mil.

Q. Right. But it is outside.

A. It's outside by .02 per mil.

Q. There's no measurement of error on top of your measurement of error.

A. It's outside by .02 per mil.

Q. So there's --

A. Clear.

Q. After Sample A, let's look at Sample B, same form. This is, again, the record of identifying the --

A. Quantifying.

Q. -- quantifying -- you're right. Thanks.

-- quantifying the values for the internal standard 5-alpha-androstanol acetate for the purpose of a quality control.

I would like you to turn your attention to the F3 blank.

MR. BRUNET: Mr. Suh, are we still at USADA 185?

MR. SUH: We're at USADA 351 where it says B Sample now, which is Exhibit 25.

Q. Dr. Brenna looking -- have you had a chance to review it?

A. Item 31.54 is the one you had in

mind?

Q. Yes, in fact, tell you what. Take a look at the Sample B, F3 blank. Take a look at the Sample B, F1 fraction. And take a look at the Sample B, F2 fraction.

Let's do this one at a time.

Ready?

A. I think I'm ready.

Q. The F3 blank: What's the value for the F3 blank?

A. Minus 31.54.

Q. All right. I'm going to try to use this circle thing again, way down here. Is that it right up there on the screen?

A. I think so, yes.

Q. And is that inside or outside of the measurement of error?

A. I believe it's outside.

Q. That's outside. Okay.

Look at the Sample B -- hold on one second.

If you look at the Sample B, Fraction 1. Do you see it?

A. Mm-hm.

Q. What's the value for the Sample B,

Fraction 1?

A. Minus 31.08.

Q. Which I'll circle again here.

Right here. That's where it is, right?

A. Yes.

Q. Is that inside or outside of the measurement of error?

A. I suppose it's outside.

Q. Do you want me to show you the --

A. Yeah, I do. I'm sorry. I should have notes here.

Q. Nope, nope, nope. Don't apologize. We want it done right too.

Well, I'm going to -- tell you what. I'm just going to take this off, okay? Because it's right in the middle. I'm going to clear this, and I'm going to put it back up here.

Is that inside or outside? Should I zoom in?

A. Outside.

Q. When you testified earlier that the internal standards and the quality controls were very impressive, did your testimony account for the fact that the internal standards that are

referenced here were outside of their measurement of error?

A. Not these specific ones, but I was aware that some of them were a bit outside, so the short answer is yes.

Q. You also talked -- when you were talking about the internal standards and the quality control, you also talked about the cal mix acetate, right?

A. Mm-hm.

Q. The cal mix acetate, you described as one of the quality controls that, again, was impressive for LNDD, correct?

A. Yes.

Q. Do you run cal mix acetate in your laboratory or for your analysis?

A. I don't run these sorts of analyses, but we have something similar.

Q. And just for clarity sake, can you, once again, describe the cal mix acetate, what it's comprised of?

A. Mix cal acetate is a mixture of four acetylated steroids that have isotope ratios that have been calibrated in pure steroid, so that there is a calibrated isotope ratio that's

known. And then the mixture is made up, and the isotope ratios are then known in the mixture. And they range over pretty much the range of interest of isotope ratios.

Q. And in this case, do you recall that the four -- once again, 5-alpha-androstanol acetate, etiocholanolone acetate, 5-beta androstanediol diacetate, and

11-ketoetiocholanolone acetate -- do you remember that?

A. Yeah.

Q. And it is these acetates that are -- this is not, of course, in a urine matrix, correct?

A. Correct.

Q. The comparison between the mix cal acetate matrix and the urine matrix, well, they're very different, aren't they?

A. Yes.

Q. And they're different insofar as that the urine matrix is far more complex; there are many more compounds inside a urine matrix or could be?

A. Yes.

Q. And that's because in a mix cal

acetate, everything that's in there is pure and added to it; it's formulated, correct?

A. Yes.

Q. Would you agree that it is much easier to get a clean chromatogram from something like a mix cal acetate in which you have added known quantities of substances to a clean matrix as opposed to something like a urine matrix?

A. Yes.

Q. It's much easier to get a clean,

good chromatogram off of a mix cal acetate than it is off of the -- off of a urine matrix, correct?

A. A mix cal acetate is easier.

Q. And that's because -- well, it's in -- to put it in a, I guess, a very simple way, it's a manufactured substance designed to be -- well, as purely -- it has the acetate and the isotopes that you're looking to inject into it or add into it in known quantities, right? You know what's in it?

A. Yes.

Q. Let me show you, which for the record, is a response to a discovery request

which describes the mixed acetate as a positive control. Do you see that?

A. Yes.

Q. Now, can you describe for us what a "positive control" is?

A. A positive control is a sample that gives a response, a known response, or tests the instrument, for providing a known response. So tests whether the instrument gives a known response.

Q. And in the case that we have here of a positive control to serve -- well, to serve as a positive control for the -- for exogenous testosterone, you would have to have the same isotopes that we were looking for before, the 5-alpha, the 5-beta, the pregnane, the etio, and the andro?

A. I wouldn't say so, but --

Q. Why wouldn't you say so?

A. Well, isotope ratio mass spectrometry determines isotope ratios on organic molecules, whether they're steroids or they're fatty acids or sugars. It doesn't matter what their identity. And so the identity, the actual structure of the molecules,

is not very important.

It's much more important -- in fact, it's critical in GC/MS, for instance, but in IRMS, it's not.

Q. In IRMS, however, here, if you were to have a quality control for -- positive control for the exogenous testosterone, wouldn't it be important for that to contain the 5-alpha and 5-beta?

A. My personal feeling is that it wouldn't be important. My personal feeling is that a compound that elutes -- elutes off the same column at a similar time, not necessarily identical time, would serve the purpose just as well.

Q. But you would have to know that it would elute at a similar time in order to serve the same purpose, correct?

A. Yes. That's an easy thing to know, however.

Q. Do the -- turning your attention to 354, these are the four steroid acetates that are added: 5-alpha-androstanol acetate, etiocholanolone acetate, 5-beta androstanediol diacetate and 11-ketoetiocholanolone acetate.

Do these elute at precisely the same retention time as the substance we're looking for here, the testosterone?

A. The testosterone.

Q. The exogenous testosterone?

A. They don't elute at the same time as the exogenous testosterone. They elute at times that correspond to the metabolites of exogenous testosterone.

Q. Do they elute at the same time?

A. As --

Q. As the -- well, you're going to have to help me with this because this is the end of the day -- as the metabolites for exogenous testosterone.

A. I believe so, yes. Yes, they are.

Q. They elute at precisely the same time?

A. Well, some of them are the same.

Q. But are they -- do each of those --

do each of those serve exactly the same function? Is it your testimony that these four steroid acetates would elute at precisely the same time that the metabolites of exogenous testosterone would elute?

A. Well, this one -- this one, so insofar as they are the same molecules, they elute at the same times. I don't see the 5-alpha here. I see a 5-alpha-androstanol acetate, which is an internal standard which would be an internal standard of all of them.

Q. That's the one that we just talked about?

A. Yeah.

Q. Right?

A. That's right. So the 5-alpha's not here.

Q. Right. So if the 5-alpha's not there, and again, in your testimony the 5-alpha would be, quote, the important one?

A. Yeah.

Q. Right? But that's not in the mix cal acetate?

A. No.

Q. So this actually couldn't serve as a positive control now, could it? It doesn't have the 5-alpha?

A. It makes no difference.

Q. Why does it make no difference if it's missing the 5-alpha? How could it make no

difference if you're missing the 5-alpha?

A. The isotope ratio read for any of these compounds can serve as a control, and it need not even be a sterol that serves as a control. The alkane mix could serve as a control. It is not necessary that it's the very same molecule. That's my testimony.

Q. To serve as a control, a positive control, don't you -- wouldn't you agree that it has to be in a urine matrix?

A. People use words in different ways. What we have is a definition here that it's called a positive control as a standard, but we know the composition of that standard. So we can argue about what a positive control is. In this case, that's not what they're calling it.

Q. In this case, that's not what they're calling it?

A. They call it a positive control. They call it a purified mixture -- a mix cal acetate a positive control, so that's what it is.

Q. So because they say that's what it is, that's what it is?

A. I don't follow your --

Q. I'm sorry. I thought that's what you just said. They say that's what it is --

A. They define -- they call a positive control this solution.

Now, if you read something into the words "positive control," that's another story. I'm not sure what you're reading into it. So they call it a positive control. It is a positive control.

Q. Okay.

Okay. You testified that in your -- on your direct examination that you thought that the instrument was linear?

A. Yes.

Q. And again, you're familiar with the importance of linearity in an IRMS analysis, right?

A. Yes.

Q. If a machine or an instrument is not linear, you can't rely on the results, correct?

A. That's -- that's not exactly right. There are situations of nonlinear machines, nonlinear responses, that are routinely calibrated. So, for instance, in hydrogen analysis, hydrogen analysis by IRMS would

routinely -- the response is always nonlinear and one calibrates for it. So you ask me, you can't rely on it? The answer is, there are circumstances in which you can rely upon it if you calibrate it.

Q. Well, let's leave aside the theoretical response. Let's talk about the -- about linearity as it applies to testing for exogenous testosterone.

A. Okay.

Q. If a machine were nonlinear, it would affect the reliability of the results, is that right, for the testing of the exogenous testosterone?

A. For carbon, yes.

Q. And what effect, once again, does sample concentration have on linearity?

A. In and of itself, nothing.

Q. Isn't it true that sample concentration, as it decreases, it can affect linearity, and linearity can become more problematic?

A. No.

Q. Tell me once again what your understanding is of the relationship between

sample concentration and linearity.

A. There is none.

Q. When you testified earlier, you testified, I believe -- correct me if I'm wrong -- that linearity is the ability of the IRMS instrument to accurately quantify the isotope ratio of each testosterone metabolite in different samples, basically regardless of their concentration; is that fair?

A. Right.

Q. In other words, basically, linearity is the ability of the instrument to be accurate in its measurement of isotopic ratio of cross-bearing samples?

A. That's one aspect -- that's one aspect of it, yes.

Q. But for at least one aspect, that's correct?

A. It should be linear.

Q. And therefore, wouldn't you agree that linearity is critical to an instrument's accuracy?

A. Yes.

Q. How often do you do linearity runs at your lab?

A. Weekly, approximately.

Q. Do you think that -- let me ask you this question: In measuring linearity, it's important to cover the full range of the expected concentrations that you would see. You wouldn't want to just cover some, correct?

A. In the interest of being clear,

concentration is not the right word. It's intensity. So it's a total amount of materials, the total mass that goes into the machines. So if we talk about total mass, it's important that the instrument be linear.

Q. And it's important to cover the full range of your expected intensity, correct?

A. I think that's -- yes.

Q. Is that fair?

A. Yes.

Q. So if a machine were linear at one end of the intensity, it might not actually be linear at the other end or another part if that part wasn't tested in a linearity test, right?

A. You're now into theoretical and hypothetical. And continuous flow isotope ratio mass spectrometry for carbon is a very linear affair. Linearity hardly ever comes up, because

linearity is a property of the material that's put into the machine, and linearity for carbon is actually not much of a problem.

So, if you say linearity at one end is different than linearity at the other end, analytically speaking, hypothetically speaking, yeah, you're correct; but it's rare the machine is not linear.

Q. When you do linearity tests --

A. Yeah.

Q. -- don't you test over the full range of the expected intensity?

A. That would be a reasonable thing to do.

Q. Okay. And you do it because you want to make sure your instrument is linear at least over its full range, at least of the expected concentration?

A. Yes, but, as I say, linearity is not something that we worry too much about.

Q. I'd like to turn your attention to Exhibit 26, which is LNDD 313 and 314.

MR. YOUNG: Have you found the document?

A. I have, yes.

Q. So turning your attention first to what's been marked LNDD 313, do you see that the smallest peak area is 26.6 nan amps --this one right here?

A. Yes.

Q. Let's turn to same exhibit, 26, let's turn to LNDD 330 -- 331 rather.

Do you see that the smallest peak area is this one right here, 26.99 nan amps?

A. Yup.

Q. And again, same exhibit, LNDD now, Page 327. And there the smallest peak area is 27.8 nan amps, right here. Do you see that?

A. Yes.

Q. Turning to Exhibit 24, which is USADA 166, do you see for androsterone, the peak area is 25.9 nan amps. It's this one right over here. Take your time. Is that correct?

A. I think so, yes.

Q. All right. And Exhibit 24, USADA 172, the 5-alpha peak area is 21.6 nan amps. Right there at the bottom. Exhibit -- do you see that?

A. Barely.

Q. Do you want me to blow it up for

you?

A. Yup. I see it now. Yeah, that's much better.

Q. Turning to Exhibit 25, which is USADA 344, its peak area for androsterone is 22 nan amps, there we go, or about 22 anyway. Do you see that?

A. I do.

Q. And then Exhibit 25, USADA 350, 5-alpha peak area is 21.5 nan amps. Do you see that?

A. I do.

Q. Now, comparing the last four blowups we've seen, wouldn't you agree that the measured peak area is not in the same range as the linearity test?

A. No.

Q. You wouldn't?

A. No. Well, because zero is there, so you draw a line. So to say that you're running between -- well, you're a little bit below the lowest number is not relevant to this sort of analysis.

Now if, in a restricted sense, you mean, are these numbers you've just demonstrated

below the lowest number that they checked, then the answer is yes, of course, because, we know what numbers mean, and that's what they mean. But I don't believe that's relevant to the analysis.

Q. It's not relevant that they, in their linearity check, they didn't look at the same numbers that they expected for their target analytes?

A. I think they analyzed it on a more difficult region which is the higher region, but it's not even difficult. This is not a technique that has a problem with linearity. Checking it is overkill, in my opinion.

Q. Linearity is overkill.

A. This kind of check- -- this kind of linearity checking is another example of being careful, of being extra careful, frankly. I can explain the physics, if you'd like.

Q. Are you familiar with this article?

A. I am.

Q. That's -- you're the same J. Thomas Brenna that's on there?

A. That's me.

Q. Do you recognize this chart on the

bottom right here?

A. I do.

Q. Why don't you explain to the Panel what this chart on the bottom signifies.

A. What the chart shows is, along the X-axis here, is carbon dioxide injected onto the column which is CO2, and this is a log scale here. That's very important to remember. It's a log scale. So these are factors of ten, .1.1, ten. And across here is the, I believe, the standard deviation. Is that right? The summation standard deviation? No, I'm sorry. I'm sorry.

This is the delta value that's determined for various amounts of CO2 injected onto the column. And so at larger amounts of CO2, we get good precision and stable signal; and then, as -- as the amount of CO2 injected onto the column decreases, we get what is called a horn pattern, where the spread in the data increase as we go to smaller amounts. And that's driven by accounting statistics; that is, you're measuring fewer molecules of CO2, so the test/retest precision is worse.

And in fact in this one -- so it'd

be -- well, so that's what you're looking at.

Q. Earlier you testified that as concentration goes up and down, there's a linear effect, right? There's a straight line. So you don't really have to test at the lower ranges?

A. Well, at the very lowest ranges as long as the signal is strong enough, then, it's fine.

Q. But in this chart, which is in your article --

A. Yes.

Q. -- doesn't it show that as concentration goes down, you get a much greater variability? You get this variability in delta values, right here.

A. Oh, yes. Of course, you do. That's variability; that's precision, not accuracy. Linearity refers to accuracy.

MR. BRUNET: Mr. Suh, we only have ten minutes to go. I don't want to restrict your right to cross-examine the witness. How long do you still think you have?

MR. SUH: Oh, I think we have quite a bit more material.

MR. BRUNET: What's quite a bit?

MR. YOUNG: With this witness, 45 minutes or so, half an hour, 45 minutes.

MR. BRUNET: The same 45 minutes as this morning?

MR. SUH: No, probably a little bit longer than this morning's 45 minutes, although, I can make time filled as the Panel desires.

MR. BRUNET: Okay. We'll -- and then Mr. Young will probably have some other questions for the witness. We'll let you run for another ten minutes; then we'll adjourn for the day, and then we'll continue with the witness tomorrow morning.

MR. SUH: Can I have a moment, please?

MR. BRUNET: Mr. Suh, would you rather stop now and then we'll start again tomorrow morning?

MR. SUH: I'm just trying to find something I can --

MR. BRUNET: No, that's fine.

MR. SUH: We can stop now.

MR. BRUNET: Well, we only have five minutes left, so we might as well adjourn now.

MR. SUH: Most of these issues are

rather lengthy. So I'd be happy to stop now.

MR. BRUNET: Okay. Well, we'll adjourn until tomorrow morning at 9:30. Thank you.

MR. JACOBS: Before we leave, can we get an identification of who tomorrow's witnesses will be?

MR. BRUNET: Yes, thank you for making that point.

Mr. Young, do you have the identification of witnesses that can be disclosed now, or do you want a couple of minutes?

MR. DUNN: No, we don't. We know -- Mr. Dunn for USADA -- we're going to call Cynthia Mongongu, Claire Frelat, and Corinne Buisson tomorrow. And do we have anybody else?

MR. BARNETT: And if we make it through that, it will be Dr. Christiane Ayotte.

MR. BRUNET: Thank you.

(Recessed at 4:55 p.m.)

BEFORE THE AMERICAN ARBITRATION ASSOCIATION

North American Court Of Arbitration For Sport Panel

TRANSCRIPT OF PROCEEDINGS, May 15, 2007

UNITED STATES ANTI-DOPING AGENCY,

Claimant,

vs.

FLOYD LANDIS,

Respondent.

PURSUANT TO NOTICE, the above arbitration hearing was held at Pepperdine University, Department of Law, Malibu, California, May 15, 2007, commencing at 9:30 a.m. before Debra K. Resling, RMR, Certified Realtime Reporter and Notary Public.

AMERICAN ARBITRATION ASSOCIATION PANEL

MR. PATRICE BRUNET, 1010 De la Gauchetiere West, #2260, Montreal, Quebec H3B 2N2, Canada. E-Mail: Pbrunet@brunetavocats.com.

MR. RICHARD H. MC LAREN, Innovative Dispute Resolutions, Ltd., c/o McKenzie Lake Lawyers, LLP, 300

Dundas Street, London, Ontario N6B 1T6, Canada.
E-mail: Mclaren@mckenzielake.com.

MR. CHRISTOPHER L. CAMPBELL, Chapman & Intrieri, 2236 Mariner Square Drive, Suite 300, Alameda, CA 94501, United States.
E-mail: Ccampbell@chapmanandintrieri.com.

APPEARANCES

MR. RICHARD R. YOUNG, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MR. DANIEL J. DUNN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 1700 Lincoln Street, Suite 4100, Denver, Colorado 80203-4541, (303)866-0365, appeared on behalf of the United States Anti-Doping Agency.

MR. MATTHEW S. BARNETT, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MS. JENNIFER SLOAN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MR. MAURICE M. SUH, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333 South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. DANIEL L. WEISS, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333 South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. HOWARD L. JACOBS, Attorney at Law, from the Law Offices of Howard L. Jacobs, 4210 Lewis Road, Suite 5, Agoura Hills, California 91301, (818)442-0408, appeared on behalf of Floyd Landis.

MR. PAUL SCOTT, Chief Operating Officer, 2160 Century Park East, #2108, (310)203-0354, Los Angeles, California 90067, Agency for Cycling Ethics.

Participants behind Counsel Table: Caroline Hatton, Kathrin Weston, James Padilla; Floyd Landis, Amber Landis, Mr. and Mrs. Paul Landis, William Geoghegan, Arnie Baker, Michael Henson, Brent Kay Todd Thompson.

Panel Participants: Dr. Francesco Botré, Andreas Zagklis.

I N D E X

USADA WITNESSES: Page

J. THOMAS BRENNA

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CYNTHIA MONGONGU

Examination by Mr. Dunn 390

(Commencing Tuesday, May 15, 2007 at 9:30 a.m)

MR. BRUNET: Well, good morning, everyone. This will resume the hearings from the USADA versus Floyd Landis arbitration.

We left off yesterday with Dr. Brenna, who was testifying on the cross. And Dr. Brenna, if you want to resume your position.

MR. YOUNG: And just -- just for the record, I told the Panel yesterday that I would give you a page cite for another place in the documentation where -- for the Panel -- the IRMS, it talks about the three out of four acceptability criteria. That's LNDD 0460.

MR. SUH: Good morning. Should we put our appearances in for --

MR. BRUNET: We can start on the appearances.

MR. SUH: Appearing on behalf of Floyd Landis, Maurice Suh from Gibson, Dunn and Crutcher. With me here at counsel table is Howard Jacobs, Dan Weiss and Paul Scott.

MR. YOUNG: Holmes Roberts and Owen, Richard Young, Matt Barnett, Dan Dunn and

Jennifer Sloan.

MR. SUH: The witness is considered sworn?

EXAMINATION (cont'd.)

BY MR. SUH:

Q. Good morning.

A. Good morning.

Q. How are you?

A. Just fine, thanks.

Q. Are you being paid for your appearance here today?

A. Yes.

Q. And you were also paid for your preparation for your appearance yesterday?

A. I've not been paid yet.

Q. You've submitted a bill?

A. No.

Q. Do you have a retainer agreement?

A. Yes.

Q. And what does your retainer agreement state as far as what -- what you will be reimbursed for your preparation and for your appearance here today?

A. $125 an hour.

Q. And how much have -- how much total

time have you incurred in preparing for your testimony?

A. I haven't added it up. Probably around 100 hours, including the trip to Paris.

Q. The trip to Paris being the trip that you took for the reprocessing?

A. Correct.

Q. Do you intend to submit any grants to USADA in the future?

A. There are none planned at the moment.

Q. Have you ruled out submitting grants to USADA in the future?

A. No.

Q. Do you serve on a working group for IRMS that involves any IRMS issues?

A. None that I can think of. Working group. An international working group or --

Q. Do you serve on any group or organization or collection of people that deal with IRMS issues?

A. I think the answer to that is no.

Q. Do you deal with or do you -- are you a part of, or have you ever been a part of, any collection of persons that have met to

discuss IRMS issues?

A. Yes.

Q. And can you tell us what those are or were?

A. Well, there will be many informal discussions that I've been a part of over the years. I've gone to many conferences and made many presentations and discussed IRMS in many contexts. I recently have attended with respect to -- with respect to athletic doping, I've recently attended the Donike Symposium in Cologne, and that was in January. And I discussed IRMS in a couple of forums there.

I also went to Donike back in June of last year, and I discussed IRMS there. There were several -- I can probably think of a few more in the recent past.

Is that satisfactory?

Q. Can you tell us what the Donike forum that involved anti-doping was?

A. The Donike Symposium is an annual event, I believe. The one that took place this past year was, I believe, was the 25th. I was in attendance at the 24th and the 25th symposia.

It's held -- my understanding is

that it's held every year in Cologne, the last four were in Cologne, Germany.

It is a workshop on anti-doping science. It is an invitation-only workshop that is attended by -- primarily by directors and members of accredited anti-doping laboratories and a few others who are involved in aspects of anti-doping science. I -- and it goes for about a week. There's talks, oral presentations, throughout the day, Monday through Thursday, I believe, and there are also posters on -- on various aspects of anti-doping science.

Q. And who does the inviting to the Donike symposium?

A. I've -- I have received invitations from the organizers in Cologne at the German Sports University in Cologne. That is -- that is where I have, my invitations have -- were originally.

Q. And who pays for your expenses to attend the Donike forum?

A. I pay those expenses out of grant funds, and, for instance, I would have used -- you showed a grant that I have from USADA yesterday. I would have used those resources to go to the Donike symposium the last two times.

Q. Yesterday you talked, on your direct examination, about the reprocessing; do you recall?

A. I recall speaking about it.

Q. And you showed a summary chart. I take it you're familiar with the values that were -- that were obtained as a result of the reprocessing?

A. Familiar, yes. If you put them up again, I'll remember what they are exactly.

Q. Sure. I'm going to put up a summary chart on the projector, and zoom into this. Does that look familiar to you?

A. Yes, it is. Yes, it does.

Q. And just for the Panel's and everyone else's benefit, the top set of values are the actual sample values.

Do you see that -- the top, in the top rectangle?

A. The top rectangle is --

Q. 995474?

A. Yes, right, right. Thank you.

Q. And it says Sample A and Sample B.

A. That's right.

Q. I just want to lay it out.

A. Yes, that's right. It's been presented in a number of different formats.

Q. And the bottom one is the blanks --

A. Right.

Q. -- for Sample A and Sample B?

A. Right.

Q. And I believe you testified yesterday that when you reviewed the results that came from the reprocessing, you didn't think any of the values that were obtained after the original results were a problem. I think your exact words were "It was not a big deal."

Do you recall that?

A. I believe so.

Q. So let's talk about some of those values.

All right. So in the far left-hand side, here, this column right here -- I'll just point to it with my pen. These are courses -- these ones right here are the original results, the ones that we're dealing with -- reported as adverse from Stage 17 contemporaneous with the Tour, right?

A. Agreed.

Q. And these are the results that were obtained when the automatic subtraction feature of OS/2 was used, correct?

A. When the -- correct. Automatic is

correct. Automatic peak detection was used.

Q. This third set is the set that was obtained using the same kind of process that was used to obtain the first set.

A. My understanding it was -- that it was the identical process.

Q. The fourth set is the set that was used when the subtraction feature was turned off, which is --

A. The set that was obtained when the subtraction feature was turned off.

Q. During the reprocessing process, correct?

A. Correct.

Q. And when the subtraction feature is turned off, that's, again, a feature of the OS/2 software.

A. Yes.

Q. Right? You can turn it on and turn it off.

A. You can turn it on; you can turn it

off.

Q. So this is on. And this is off, correct?

A. Correct.

Q. And this far column here is the result when MassLynx processes, right?

A. Yes.

Q. And by the way, there's -- you are told that -- it's your understanding that MassLynx doesn't allow for this manual process that was used here, correct?

A. I was told that; however, there is a question of one sample that was inspected by the LNDD staff, and they indicated that they had found a peak setting that would -- sorry. I believe it was a background point that they thought was out of place. And they went back to try to correct that, and the MassLynx software crashed. And so they were unable to do anything with that.

So my understanding is that all of the data, all of the data reduction that is represented on this table, was as a result of automatic processing by MassLynx.

Q. And moreover, that the MassLynx --

you were told that the MassLynx process, aside from the situation in which you might have a crashing of the system and restart it, that it is automatic, right?

In other words, you wouldn't have the same kind of process that you would have here?

A. That's what I'm trying to say, yes.

Q. Right. I just want to be clear.

A. Yes, sure.

Q. I mean -- okay. I'm not an expert on this, believe me.

So this -- and I think you were also told that this kind of process not only is not allowed by a MassLynx, but it doesn't happen. They don't do this kind of process because MassLynx doesn't allow for it.

A. Well, I mean, I don't -- I can't say that MassLynx doesn't allow it. They tried to do it with MassLynx, and I believe that MassLynx -- it's -- it's got a button to permit it, but the button doesn't work, or it didn't work on one of these, that it was tried.

So I can't say whether it permits manual or it doesn't permit. I believe it does,

actually, but -- or it's supposed to, it's designed to, but I -- it just wasn't operational on these samples.

Q. And that's -- and you understand that from discussions with the LNDD technicians.

A. Yes.

Q. And which LNDD technician or person told you that?

A. Well, I think it was -- I think it was in the course of general discussion, so, rather than a two-way conversation between you and me, for instance, it would be a discussion around a conference table. So who exactly said what, I don't recall. I just don't recall.

Q. Do you recall who was present at that discussion?

A. Yes. Yes, there was -- I'm going to get names messed up. I will go by first names. There was Corinne Buisson; I believe was her name, and --

Q. Let's take a look around our courtroom here today. Do you see Corinne Buisson?

A. Yes.

Q. She's right over there.

A. She's over there, yes. And Claire was there.

Q. Claire?

A. I forget her last name.

Q. Frelat? She's sitting over there in the courtroom today?

A. Yes. And Cynthia Mongongu. And I don't recall if the laboratory director, Jacques de Ceaurriz -- I apologize for my pronunciation -- I don't know if he was in the room.

MR. SUH: Mr. Chair, because I know we're going to be using and pronouncing this particular name, perhaps you can, to help us, say the name once, so that we can properly pronounce it.

MR. BRUNET: I believe, if he's present here, I believe it's "de Sor-ree." That is my understanding, Professor "de Sor-ree." So, it's like a cherry: "Sor-ree."

Q. Right. Professor "de Sor-ree." That's about as good as it's going to get, unfortunately.

A. Okay.

Q. All right. He was present, also,

during this conversation?

A. I actually don't recall if he was present. Chances are he was, but I just don't recall.

Q. But certainly the others were present?

A. I believe so.

Q. And that's when you understood that the kind of processing that we see here and here does not occur with MassLynx, because the feature was disabled or was not working?

A. The feature was not working; that was my understanding. It was there, but it was not working. At least, it didn't work on one of those.

Q. When you look at the values, do you see, for example -- let's turn to the B Sample, up here, you see that these, of course, are values expressed in the per mil minus 2.02, when it was originally processed. And then when it was reprocessed, using the same method, that value changed to minus 3.05.

A. Correct.

Q. From an analytical standpoint, is the difference between minus 2.02 to minus 3.05,

a significant difference?

A. Yes.

Q. And it's certainly outside the measurement of uncertainty for the laboratory as it applies to this particular procedure?

A. Yes.

Q. I turn your attention to the alpha value, minus 11-keto. Do you see in the original results --

A. Can you move that over a little, so I can see the label? Thank you.

Q. Is that better?

A. Yes. Thank you.

Q. See it says minus 3.51 per mil --

A. Yes.

Q. -- for the alpha minus 11-keto. And then when we process using the same method --

A. You said alpha; that's andro.

Q. Excuse me, andro -- changed to minus 1.61?

A. Right.

Q. Do you think that difference is a

significant difference?

A. I do.

Q. Was the same process applied for

analysis of these all across the board with respect to Sample A and Sample B on the reprocessing? Nothing was done differently for the -- for these particular two isotopes as compared to others?

A. Correct. I believe it was -- I watched it -- it was the same.

Q. In your lab, if you saw a difference of this magnitude when two samples were run, using the same process, would it cause you concern?

A. You said two samples?

Q. I'm sorry. If you were to process the same sample, using the same data, and reprocess it using the same technique, and you saw this level of difference, would it cause you concern?

A. Yes.

Q. Let's turn to the blanks.

Do you see that the blank urine which you get is described as feature-designed to be part of the quality control of the laboratory, that when it was run, for example, on, rerun automatically, using the automatic feature, that the 5-alpha blank changed from minus 1.59 to minus 3.65?

A. Mm-hm.

Q. Do you find that difference to be a significant difference?

A. Yes.

Q. And in particular, do you find anything noticeable about that difference, the difference from minus 1.59 to minus 3.65, as compared to the other two differences that we talked about right here?

A. I don't follow your question.

Q. Do you -- let me ask it this way: When you look at this particular difference, do you see that it now exceeds the minus 3 per mil standard?

A. It exceeds minus 3 per mil; it doesn't exceed minus 3.8, which would be the threshold for declaring it positive.

Q. Are you aware that USADA in their brief argue that the minus .8 measure of uncertainty does not apply to the final reporting of the per-mil value?

A. I don't recall that.

Q. Hold on a second. I'd like to show you what USADA says in their brief.

Do you see paragraph 91, right here?

A. Yeah, I see 91.

Q. Do you see the highlighted portion. I will read it for you: "Under the ISL and the applicable technical documents, LNDD's statement and its conclusion was correct because LNDD was not required to take into account uncertainty in the measurement of its IRMS delta values."

Do you see that?

A. I see it.

Q. It sounds like you disagree with that statement when you just applied the .8 measure of uncertainty.

A. I'm not willing to say I disagree with it, but I -- you've read it and --

Q. Why aren't you willing to --

A. Well, because I don't really know what he said, what he means, so I'm not saying I agree or disagree. I'm simply saying that the measurement of uncertainty as I was led to understand it of .8 was applied.

Q. It's your testimony that you don't understand what this sentence means. You don't under- --

A. I don't know the ISL rules, and so I

can't --

Q. Well, you understand that it's

LNDD's -- that USADA has taken the position that LNDD -- I will underline it for you -- oh, wait a minute. I'm going to use this thing.

"LNDD was not required to take into account the uncertainty of the measurement of the IRMS delta values."

Do you understand now that your calculation now, that it's not adverse, because it's not within -- when you take into account the point -- the .08 measurement of uncertainty, it doesn't fall above minus 3, that that contradicts USADA's position on this?

A. I'm not USADA. I don't have a position.

Q. I'm not asking you whether or not you are USADA.

A. You're asking me --

Q. I'm asking you whether or not you understand that your statement contradicts -- it's a pretty simple question. You said that this -- what you've done, sir -- oh, erase.

What you've done is, you've said this minus 3.65 is not adverse because when you

subtract minus .8, the measurement of uncertainty, it doesn't go above 3.

A. I did say that, yes.

Q. Right. And then I show you this, and you tell me you don't understand what this means. And my only response is I don't understand what you mean. It says, "LNDD was not required to take into account uncertainty in the measurement of IRMS delta values."

So my question to you is, do you agree or do you disagree with USADA's position on this statement?

A. I think I've answered the question.

Q. I don't think you have, sir. I don't think you have. Do you agree, or do you disagree?

A. Well, I'm not going to --

Q. You're not going to disagree with anything USADA says today, are you?

A. I'm answering the question you asked. And I've given you the answer. I've given you my answer.

MR. SUH: I'm going to ask the Panel to direct the witness to answer the question, because I don't believe he has. I've asked him

whether or not he agrees or disagrees with their statement, and he says he won't.

MR. YOUNG: May I respond to that, Mr. Chair?

MR. BRUNET: Yes.

MR. YOUNG: What this says is that the applicable technical document does not require that uncertainty be taken into account.

If he wants the witness to read the applicable technical document which talks about which are threshold substances and which are not threshold substances in the context of the brief, that's fine.

But that is what the statement in the brief says. And I don't see whether -- what he's really asking the witness is: Does the applicable technical document require this or not? And he's not showing him the applicable technical document or even asking him about the applicable technical document.

MR. SUH: I'm sorry, but that's not what I'm asking. I'm asking a very simple question. I'm asking whether or not he agrees or disagrees with the statement that LNDD was not required to take into account uncertainty of

measurement.

MR. BRUNET: And you would be required or not required by the applicable technical document.

MR. SUH: Well, let's make it easy then. I'll flip this over, and I'll ask you the question without the brief.

Q. (By Mr. Suh) Do you agree or disagree that the final value reported here should take into account measurement of uncertainty?

A. I think it should take into account the measurement of uncertainty.

Q. All right. Turning your attention back to the chart here, do you see that, once again, when there's minus 1.6 on the original result, it turns on the blank, that quality control measure, to minus 3.45.

A. Yes.

Q. Do you find that difference to be a significant difference in your experience as it relates to IRMS testimony?

A. Yes.

Q. Can you, taking a look at this chart of values -- can you show me or point out any

two values which are the same?

A. There are many values that are the same with experimental error, which is the way I view --

Q. With the .8, applying the .8 measurement of uncertainty?

A. Yes.

Q. Let me ask you this way: Without applying the measurement of uncertainty, which is apparently the way USADA would have you do it, do you see any of those two values, for obviously the same isotope, being the same?

A. No. If you're asking me -- let me clarify. If you're asking me in the restricted sense in terms of whether any of the lines have identical entries, the answer is clearly no.

Q. If you were to have processed your electronic data files or samples and were to have seen the variants that you see here, as a total picture -- as a total picture, would it have caused you concern?

A. In my own lab or --

Q. In your own lab.

A. I would have been concerned -- yes.

Q. And looking at the bottom triangle,

when you see the variation in values, in your own lab, would it have caused you concern?

A. No.

Q. Now, the bottom triangle being the blanks --

A. You said triangle; you mean rectangle.

Q. Rectangle. Excuse me. The bottom rectangle.

A. The bottom rectangle, the answer's no.

Q. It would not have caused you concern?

A. No.

Q. I would like to turn your attention, now, to a series of documents which are marked consecutively GC 1056 which we will -- we should take a moment to get them. If not, do you have them available? Or we can get them to -- we can get them for you, whatever's easiest.

MR. BARNETT: Do you have a set of your exhibits for the witness?

MR. SUH: We do. We can get another set. We can also show it up here on the --

MR. BARNETT: Which exhibit are you

trying to do, Mr. Suh?

MR. SUH: It's Exhibit --

MR. JACOBS: It's not a separate exhibit number. However, there are separate GDC Bates-labeled binders.

MR. BARNETT: And do we have a set of those for the witness?

MR. SUH: We will get it.

MR. CAMPBELL: 1056, you say?

MR. SUH: 1056.

Q. Dr. Brenna, I'd like you to take a moment. It is going to take you a --

MR. BRUNET: Mr. Suh. Mr. Suh, can you give us a moment to find it?

MR. SUH: Sure. I was just going to tell him to take a moment to review the documents.

A. If you could just direct me to the page.

Q. Sure. It begins GDC 1056. And it

goes consecutively 1056 through to 1077.

A. You said 1077?

Q. I'm sorry. It begins 1056 and it runs consecutively through 1077.

A. Okay. 1077 includes some text. Do

you intend to include text?

Q. I don't think that -- maybe 1076.

A. 1076.

Q. GDC.

A. GDC 1076 includes text.

Q. Hold on a second. Go to 1075.

A. Thank you.

Q. Dr. Brenna, can you just tell me when you're ready?

A. I'm as ready as I'm going to be.

Q. Do you realize what documents marked GDC 1056 to 1073 are -- or 1075?

A. 1075.

I recognize them as log files that were printed at the request of Dr. Davis at the -- during the May 4th and 5th meeting in the laboratory, LNDD.

Q. And you recognize them as the log files. And when we say log files, we're talking about the log files from the MassLynx system, correct?

A. I understand that to be the case.

Q. All right. And were you -- are you

also aware that the OS/2 system does not have the process, at least at LNDD, to save the log

files?

A. So I am told, but that's not firsthand. I don't have expertise with the OS/2 software, so I don't want -- want to indicate that I do. So I am told.

Q. And you were told that by whom?

A. Well, Dr. Davis certainly asserted it.

Q. Were you told that by anyone from LNDD?

A. I honestly don't recall, but I don't recall Dr. Davis's assertion being contradicted by anyone either.

Q. This was in that meeting where you all were seated around the table?

A. I -- I believe so. There were also discussions in the laboratory, but we -- we were all together most of the time, actually.

Q. And when you say "all together," you mean, of course, Dr. Davis and the technicians from LNDD?

A. Right.

Q. So looking at 1056, can you explain what log files are?

A. I can't explain these log files to

much degree of accuracy because I am not familiar with the MassLynx system. And so my expertise with respect to these log files is very, very meager. I -- I won't be able to answer with clarity very much about these log files.

Q. Let's take a look at -- oh, let's take -- let's start with 1056. You understand log files being a file that contains the events that occur in relation to a particular testing of a specimen, correct?

A. I understand that to be the case.

Q. And again, these log files are from the MassLynx system, and, if you look at 1056, do you see that there is a date, April 17th --

Why don't -- Todd, why don't we pull up -- why don't we pull up the event occurring at 11:42:51.

Do you see on the left-hand side there's a date, April 17th?

A. Mm-hm.

Q. And do you see that there is a time right next to it?

A. Mm-hm.

Q. By the way, that date corresponds to

the date, of course, you were in Paris at LNDD,

correct?

A. No.

Q. Oh, excuse me. That's right. This occurred after you were there.

A. Before.

Q. I'm sorry. The day the sample was run.

Excuse me. The -- the date corresponds to the date that the testing event occurred.

A. I understood that to be the case, right.

Q. Turning to the first event, do you see at 11:42:51, there's, Opening the sample file; and below that, it says, Commencing analysis of the CalMixIRMS01.

Do you see that?

A. I see that.

Q. That's the same CalMixIRMS that we talked about that is a quality control, right?

A. That's the same name.

Q. The same name, but that's the same thing. That was the substance of your testimony yesterday?

A. It's the same name. I can't vouch for whether that is actually something that was injected at the time, so ...

Q. But if it wasn't, then somebody

would have to be lying about what's on the log.

A. That is correct.

Q. All right. And do you see -- I'm going to highlight the event at 11:48:08 which says, C: MassLynx Projects control. At the end, it says, 1704CalMixIRMS01.

Do you see that?

A. Just give me a second.

Q. Okay. It's right up there.

A. I want to find it here too. Yes, it does. I'm sorry about that.

Q. Now, if you go down four lines, you'll see, it says, once again, Commencing analysis of 1704 CalMixIRMS01.

Do you see that?

A. I do.

Q. Now, at that point, wouldn't you agree that that's a rerunning of the previous CalMixIRMS?

A. It certainly would appear to be.

Q. And then, if you go down three

lines, to 12:05, you see it was saved to 1704 MixCalIRMS01, right?

A. Yes, sir.

Q. Same file name that was just -- just redone, right?

A. It would seem to be corrected. It looks like it is written over.

Q. Right, it is written over. And when it is written over, is there any record of what that data would have been from this one, same data? It's this one right here. Is there any record of the data that's obtained from that?

A. Well, not knowing the system, I can't say for sure. If it were a Window system, then writing over would -- I understand that it simply deletes a character or one could recover it later, but using specialized software. But from the perspective of a directory of normal use, the first set of data is essentially gone.

Q. That's right. And it's gone because it was saved with the same file name, right?

A. I think that's accurate.

Q. Because you could have saved this with something else, you could put a little "a" over here --

A. Yes.

Q. -- or something?

A. Yes.

Q. And you would know that it was done, but instead, it's saved with the same file name, so that first set of data -- gone, right?

A. Like I say, unless you use Norton Utilities or something to go back and pick it out.

Q. Like some forensic recovery program.

A. Like Norton Utilities. Lots of us have Norton Utilities. I wouldn't call it forensic.

Q. I don't have Norton Utilities.

A. You don't? Maybe you need it.

Q. Maybe you can loan me your copy.

All right. So going down 1, 2, 3, 4, 5, 6 lines, you see, Commencing analysis of CalMixIRMS02. That would be -- that would be the second CalMixIRMS, right?

A. Mm-hm, mm-hm.

Q. Now, going down again, another four lines, do you see where it says, Commencing analysis of --

I think we'll have to scroll down a

little bit there, Todd, just one more -- and several more lines.

Yes. Okay. It's this one right here at 1704. 1704, it's 12:06, where it says, Commencing analysis of CalMixIRMS.

And Todd, is it going to be possible to put up the previous highlighted sections? Okay. Great.

And then below that, you see, of course, the data acquired, three lines below that at 12:16:25.

A. Yep.

Q. Okay. And then going down once

more, you see at 12:17:43, Commencing analysis of 1704 CalMixIRMS01 again.

Now, Todd, maybe you want to take a moment to go back up, because we lost some of those highlighted portions. Just go ahead and highlight -- yes, there we go. And then we're now going to have to make it long again.

Again, the CalMixIRMS01 -- and if we turn to the next page, which is now GDC 1057, you see CalMixIRMS01 again. So that means the second CalMixIRMS01 raw data is similarly gone, unless you use Norton Utilities or something to

find it, because it's saved over, right?

A. It seems like it.

Q. Okay. And then let's go down a few more lines to 12:33:21. It says -- up at the top there, Commencing analysis of CalMixIRMS02 at 12:33:21, the third line in your box, there, Todd.

So now we're running 02 again, so the first 02, similarly discarded; gone.

A. It seems like it.

Q. Right? Okay.

Let's turn to GDC Page Number 1058.

And Todd, if you could get us on to time 20:17:24.

Right at the top there, you will see --

I think you're going to have to -- I'm sorry. You going to have to go up one more --

-- Commencing 19:52:43, where it says, Commencing analysis of 1704BLu1F2.

Do you see that?

A. I see it up there.

Q. Okay. And then if you go down three lines, you'll see that there is the data which

is saved to 1704Blu1F2.raw, and then if you go down another four lines, commencing analysis of 1704Blu1F2 again, right?

A. I see it.

Q. And then three lines lower than that, you see another set. Once again, the data from the first one is gone, unless you use Norton Utilities or some other program to recover it. And once again, they could have saved this with a different file name, which would have saved it, right?

A. Agreed.

Q. Okay. That's just day one.

Why don't you turn your attention to Page 1061, and on there, take a look at --

Todd, could you put up the entry at 18:28:28, Commencing analysis of 1804Blu2F3.

And then go down a few more lines.

Do you see 1804Blu2F3?

A. Mm-hm.

Q. If you go down a few more lines -- oh, by the way that blank is blank urine for F3, which is again one of the quality controls that was talked about in great length in USADA's brief.

And if you go down, it says -- you know, what? I'm going to move on.

Let's turn to Day 4. I'll give you the page number. Let's to turn Page Number -- let's go to 1068.

Turn to entry, Todd, at 11:26:19. I'm sorry. You're right. It's at 12 -- is it 12 -- 11:26:19. 11:26:19. It's near the bottom of the page at 1068?

MR. BRUNET: 1068 runs from 17:35 to 22:48.

Q. I think I've the wrong page number. I'm going to do this from here, so we can --

1066. I'm sorry. 1066, looking at the bottom of the page, at 11:26:19.

Do you see it says, Commencing analysis of 2004MixCalAcetate01?

Do you see it was saved to, three lines down, MixCalAcetate.01.raw?

A. I see that.

Q. And then see, once again, at 12:22:45, Commencing analysis of

MixCalAcetate.01 again.

A. I see it.

Q. And again, that data from that first

MixCalAcetate01 is gone, unless you use some Norton Utilities program or some other program to recover it, correct?

A. Yes, that's correct.

Q. All right. Let's turn your attention to Page 1069. This is Day 5, and if you turn to time stop 8:45:36, you will see it says, Starting acquisition, beginning of the process?

MR. TODD THOMPSON: What was the time on it?

Q. It is 8:45:31.

A. Mm-hm.

Q. Do you see that the starting acquisition time relates to the files 2104stabilitie1.raw, which is two lines below. The stability check again is one of the control checks that LNDD talked about, right -- or USADA talked about. Excuse me.

Go down four lines, starting acquisition again. And then once again, two lines later, saved to 2104stabilitie1.raw.

A. I see that.

Q. The data from the first stability run gone, right?

A. Yes.

Q. Let's go down again, starting acquisition again, saved to 2104stabilitie1.raw.

Now, the first and the second values gone, unless you recover it, right?

A. Correct.

Q. Okay. Let's go down to the bottom of that page now at 9:25:32, where we commence the analysis of, again, a CalMixIRMS, one of their quality controls. Three lines down, you see data saved to 2104CalMixIRMS01.raw? Do you see that?

A. I do.

Q. And then six lines down, Commencing analysis of 2104MixCalIRMS2. This time it's being done in sequence, right?

A. Yes.

Q. And then a few lines later on the next page, which is 1070, you see CalMixIRMS02.raw. The data is acquired, and then this time, once again, a few lines down from that, you see that 9:56:51 CalMixIRMS03 is being run. Again, this time in sequence.

A. Yes.

Q. Like it should be. And then the

data recovered, right? That's what you would expect to see, right?

A. Yes.

Q. CalMixIRMS 1, 2, 3, one right after another. Okay?

A. Okay.

Q. Here's -- go down six lines. Look at Commencing analysis of CalMixIRMS01 again. And then the data acquired CalMixIRMS01.raw, which would have overwritten and deleted the data from CalMixIRMS, the previous CalMixIRMS01.raw, that was previously run in sequence, right?

A. Mm-hm.

Q. Right?

A. Yes.

Q. Okay. All right. Now, going down now, Commencing analysis of 2104CalMixIRMS02. It's 10:31:52. And then data saved to 2104CalMixIRMS02, now rewriting and overwriting, and thereby deleting the data previously obtained.

A. It seems so.

Q. Go down another few lines, Commencing analysis of 2104MixCalIRMS03. Again,

MixCalIRMS03; and then a few lines down from that MixCalIRMS03.raw, now overwriting the data from 03.

Do you see that?

A. I do.

Q. Are you aware -- do you know who Larry Bowers is from USADA?

A. I do.

Q. Do you see him here in the courtroom today?

A. I do.

Q. Are you aware that he had sought to prevent Mr. Landis from getting these log files?

A. I -- I'm --

Q. Are you aware of that?

A. I -- I'm not aware. I'm not sure.

Q. You're not sure?

A. I don't -- I don't recall.

Q. Because without these log files, we wouldn't know about the data that was deleted, right? How could we know?

A. Probably so.

Q. All right. Let's turn to -- do you see Larry Bowers here in the courtroom?

A. I do.

Q. Could you point to him and indicate him by an articles of clothing he's wearing?

A. The gentleman in the dark suit with glasses.

Q. The smile on his face?

A. The smile on his face.

Q. All right. Turning to Day 6 now, which is Page -- I'd like you to turn to Page 1073, to --

MR. CAMPBELL: Mr. Suh, I think we're missing a page -- Page 1073 in ours.

MR. BARNETT: I'm missing it as well.

A. I'm missing it as well.

MR. MC LAREN: Just get copies later.

We will -- we'll work off the screen.

MR. SUH: My apologies. Do we have it?

MR. YOUNG: I think we would like a copy to look at.

MR. SUH: Sure.

MR. BRUNET: Give Mr. Young a copy. We will work off the screen.

Q. Turning to 1073, if you look at time gap 13:09:02, Commencing analysis of 2204 MixCalAcetate01, one of the quality controls measures we talked about earlier.

Do you see that three lines down the data's acquired at MixCalAcetate01.raw?

A. I do.

Q. And then 1, 2, 3, 4, 5, 6 lines down

from that, Commencing analysis of 2204 Mix.Cal.Acetate01.

Do you see that?

A. I do.

Q. 1, 2, 3, 4 lines down from that, at 13:55:43. Once again, saving it to the same file number, thereby deleting the data from the first run.

A. Same file name.

Q. File name. Same file name.

And then once again, four lines down, Commencing analysis of 2204 MixCalAcetate01, three lines down from that, saving it to the same file name, thereby deleting the two previous mix cal acetate runs never to be heard from again.

Do you see that?

A. I do.

MR. SUH: No further questions.

MR. BRUNET: Thank you, Mr. Suh.

Mr. Young.

EXAMINATION

BY MR. YOUNG:

Q. Dr. Brenna, when you were asked by Mr. Suh whether you had any concerns regarding these two numbers, you said no. Could you explain why?

A. I believe I said no to the question

whether I had concerns over the rectangle --

Q. Right.

A. -- that might be caused by those two numbers. And I answered no because I looked at the original results, and the manual results, and I believe those values to correspond well. And the automatic result, I have questions about -- well, not questions, but I believe that the procedure used in the Paris lab to evaluate the peak starts and stops is a quality control procedure, which is used in most labs, and that the minus 3.65 and the minus 3.45 are indicative of the software's not choosing proper points and that their quality control step in that case,

which is done according to their standard operating procedures, recovered a value which is within experimental error in the manual.

And that was exactly -- that was the limit of my thinking in answering the -- in answering Mr. Suh's question.

Q. So the quality control step fixed the problem in the operating?

A. That is one way to express it, yes.

Q. And you said you did have concerns about the, in the B Sample, the difference for etio and 11-ketoetio, and andro and 11-ketoetio between the manual or the quality control and the original results.

Let's go back through the fractions. The first fraction is 11-keto?

A. Mm-hm.

Q. Second fraction is andro and etio; is that right?

A. Yep.

Q. And then the third fraction is the three diols.

A. Right.

Q. If you would have seen this in your lab, and you said it had a concern, does that

give you concern about all three fractions or just the 11-keto Fraction 1, or would you look at the andro etio Fraction 2?

A. It would concern -- my procedure would be to go back and look at the chromatograms and evaluate backgrounds and P starts and stops and that sort of thing. So it would -- so that the two rows of numbers at the bottom of the top rectangle are different chromatograms -- derived from different chromatograms than those that are circled, and so I wouldn't be concerned about -- excuse me -- about them based on the others.

Q. And you have gone back, just interviewing the documentation package, and reviewed the chromatograms for the 5-alpha pdiol? That's what we talked about yesterday.

A. Yes. Yes.

Q. If someone were to use the quality control manual integration feature in MassLynx, would that make the results better in your view or less reliable?

A. It could make them better.

Q. This is a page of the study that Mr. Suh asked you about dealing with linearity.

Let's -- I believe you testified yesterday that this horn was an issue of precision, not accuracy; am I correct in your memory on that?

A. Yes.

Q. Explain that to me. Why is that?

A. Well, precision is the -- the spread in the data. You can see it in higher sample injections that the data are very tight, and precision is very good.

Accuracy is where the mean of all the determinations would lie, and so you can see that -- that the means of any one of these points will lie roughly on a line, a horizontal line. And so the accuracy, judged on that basis, is just fine. So I was distinguishing between precision and accuracy with respect to the sort of linearity which is represented by this plot.

Q. So does that mean at the small

signal in that you're representing here, that it's accurate; it's just not very precise?

A. That's correct.

Q. In relation to the small signal in that you're showing in this figure, how does the

size of signal where this horn starts compare to the size of signal that we're talking about in the 5-alpha or the pregnanediol?

A. Those signals are up here -- excuse me. Those signals are up here in the higher end.

This is a -- the study was a very, very specific sort of -- I call it a nitty-gritty analytical chemistry study, and so we went to very low signal levels, signal levels that you would never consider in the sort of work we're discussing here. And when I say "sort of," I mean work that is designed to reveal variation in natural isotope ratios. So we wouldn't be working around here. We must be working up here.

And you see quite a tight bunching here and a straight line in this region, I mean, at the high end, and so then the precision is fine.

Q. Also on linearity, when Mr. Suh was asking you about the -- and let's put --

James, let's put LNDD 313 up. It's

out of Exhibit 26, which is the June 26th linearity test.

Mr. Suh was asking you to compare this document for purposes of what they did their linearity check in June with the 5-alpha signal, which was a later document.

Is this a peak or an area measurement?

A. This column is an area measurement, an area calculated from the pulses of CO2 that are admitted in to the instrument to check linearity. And I want to emphasize also that the linearity that we're talking about now is actually different from the linearity which is shown on my paper, that we were just looking at. And this is a fine point that's -- it's somewhat nuanced, but it's, nevertheless, quite distinct.

Q. Okay. Go to 314, please. This is the next page in the documents. This is the next page in LNDD's linearity study. What's this?

A. That is -- those are the data that are used to drive the numbers on the preceding page, and they represent admission of carbon dioxide into the instrument at various levels: Lower level, higher level, lower, highest level, and then back to low level.

And these data are meant to establish that the peak height, as distinguished it from area, produces a linear response from low levels to high levels -- not area but height -- and the heights are not on the preceding page. The areas are on the preceding page.

Q. So if you wanted to compare the linearity measured by the instrument in the linearity check with the 5-alpha or the pdiol, this is what you would use?

A. The fairest comparison is the peak heights, or the height of this level; for instance, the low level compared to a height elsewhere.

Q. How far down in the linearity check did they go in terms of size of peaks?

A. I looked at the -- all the peaks that are at issue, and all of the peaks are actually a higher intensity -- they'd be in this range -- than these lowest linearity values.

Q. Okay. Let me show you one that we have seen over and over again on the screen.

So where was the intensity -- when we just looked at the linearity study, where was

the intensity using your PowerPoint?

A. Could you move it to the right so we could see the Y axis values -- the other way.

Q. Oh, sorry.

A. Good. So on the linearity check we just looked at, the lowest level was here, approximately, 1.8 or so, and as you can see, the lowest level for 5-alpha --

Q. 5-alpha.

A. -- is above that.

Q. And the pdiol is?

A. Way above that.

Q. That's beta.

A. Beta -- oh, I'm sorry. Yeah, pdiol.

Q. And have you done that check for all of the 5-alpha and pdiol --

A. I did.

Q. When all of the log file data that Mr. Suh showed you came out of the ten samples that were analyzed on, starting on April 16, were you there?

A. I was not.

Q. When you were all together with Dr. Botré on May 4th and 5th, was Dr. Davis given an opportunity to have that data that was

accumulated on April 16th week reanalyzed again on the MassLynx software?

A. Yes. I believe so, yes.

Q. Okay. What do you remember of those

discussions?

A. My recollection is that, on the first day, he talked about the possibility of reanalyzing the MassLynx software -- I'm sorry -- the MassLynx data on the MassLynx system, and I think there was general -- I think confusion is probably the right word. We didn't really understand why he would want to reanalyze data on MassLynx that was acquired on MassLynx.

So I don't believe we ever got an answer to that question. But then the next day, when we came back, he said that he didn't need to analyze it, reanalyze it, on the MassLynx, and so he did not.

Q. Did he say why he didn't need to reanalyze it on the MassLynx?

A. You know, I don't recall. I don't think he did, but -- I don't believe he did.

Q. But he had a choice, and he elected not to exercise it.

A. That is my understanding.

MR. YOUNG: We would reserve the right to call this witness in rebuttal, but that is the end of our redirect.

Thank you.

MR. SUH: I have one question.

MR. BRUNET: Mr. Suh, go ahead.

EXAMINATION

BY MR. SUH:

Q. Dr. Brenna, in the hundred-or-so hours that you took to prepare for your testimony here today, did anybody from USADA talk to you about the log file data that we talked about here today?

A. No.

MR. SUH: Thank you.

MR. BRUNET: Thank you, we will take a 15-minute recess.

(Recess taken from 10:53 to 11:14 a.m.)

MR. BRUNET: Welcome back.

Mr. Young, are you ready to call your next witness?

MR. YOUNG: We are.

MR. DUNN: I'm Mr. Dunn, and our next witness is Cynthia Mongongu from LNDD.

Cynthia, can you come on up.

And because Cynthia's first language is French, although she does speak some English, we have a translator here, and he is Mr. Debbaudt.

Mr. Debbaudt, if you would come up, please.

MR. BRUNET: You probably have a lot of experience in this, but I just want to remind you to translate the words and not interpret, and just adapt to the pace so that when, there's no run-on sentences, and length of time, for the witness to answer. Thank you.

Could we swear him in.

WHEREUPON,

INTERPRETER PIERRE DEBBAUDT,

the interpreter herein, having been first duly sworn to translate from the French to English language the testimony given herein, testified on his oath as follows:

(The following answers reflect the responses from the witness through the interpreter unless otherwise noted.)

WHEREUPON,

CYNTHIA MONGONGU,

the witness herein, having been first duly sworn, through the interpreter, to state the whole truth, testified on her oath as follows:

EXAMINATION

BY MR. DUNN:

Q. Good morning, Ms. Mongongu.

Have you ever testified before?

THE INTERPRETER: No, she's never witnessed before.

Q. Ms. Mongongu, I understand that you speak English but that French is your first language. Would you prefer today to speak primarily in French?

THE INTERPRETER: I prefer to speak French.

Q. If at any point you feel comfortable answering a question of mine in English, you should feel free to do so, but only do that if you are sure you understand my question, okay?

(Interpreting.)

Today we're going to talk about three or four main subjects, and I just want to give you an outline of those first, and then start into

them.

The first thing we're going to talk about substantively is the analysis you performed of the Stage 17 A Sample, and then we're going to talk about the analysis of the B Sample on which you served as the verifying scientist.

And then we're going to switch to the analyses that you performed in April of this year of the athlete's other B samples.

THE INTERPRETER: What was that word technical word "athlete"?

Q. Athlete.

And then, finally, the last chapter of our discussion is going to be the reprocessing of the electronic data files that you did a couple of weeks ago in Paris.

(Interpreting.)

But before we go into any of these, just tell us a little bit about yourself. Where were you born? Of what country are you a citizen? And where were you educated?

(The following answers reflect the responses from the witness through the interpreter unless otherwise noted.)

A. (By Interpreter) I was born in --

I'm from Brussels. I was born originally in the Congo, Belgium.

MR. BRUNET: No. No. Pardon.

She was born in Belgium, but she has a Congolese nationality.

THE INTERPRETER: Okay. My apologies.

Q. Ms. Mongongu, could you sit closer to the microphone and speak up just a little bit so that we can all hear you.

So you were born in Belgium, and you're a citizen of the Congo, and you live in France?

A. (By Interpreter) Yes, that's it.

Q. Tell us quickly about your education in college after high school.

A. She has a master's in microchemistry. She has done some superior studies, and the last phase of the university studies in analytical chemistry.

Q. How many years of college and postgraduate education do you have?

A. That corresponds -- five years. That corresponds to baccalaureate plus five years.

Q. And did you graduate with any honors?

A. Yes. She was in the first place for her class in her last year.

MR. JACOBS: Can we ask the interpreter to interpret in the first person instead of the third person, please?

MR. BRUNET: Noted.

THE INTERPRETER: Will do.

Q. What university did you get your degrees from?

A. The University of René Descartes in Paris, France.

Q. And did you work your way through college?

A. Yes, absolutely. For four years I worked, in other words, to cover my studies.

Q. Where did you work?

A. I worked in a restaurant in the Paris area.

Q. All right. We're now going to turn to your employment at the LNDD.

If you could just take us through when you began first and then the different positions you have held until the current

position you now hold.

A. Okay. I started as a student -- what do you call it -- an intern. She was an intern with the company starting February 2003.

Yes. And I did some internship with regard to optical analysis. Okay. And then I was taking the position of a full analyst.

MR. SUH: Mr. Chair, it seems to us that there is a conversation going back and forth between the interpreter and the witness.

MR. BRUNET: I just want to confirm. There's no conversation. He's asking either to articulate better or to repeat, because these are technical words. And sometimes I understand the interpreter, and I would be challenged as well if I had to interpret as fast as he's doing.

But these are not conversations, I can confirm to you; these are simply requests for precision. And he's doing the best he can under the circumstances.

MR. SUH: Sorry. We just don't know what's going on.

MR. BRUNET: That's fine. I just wanted to share this with you. If there is a conversation going on between the two of them, I'll make sure that I'll intervene and let you know.

MR. BARNETT: Mr. Chairman, the interpreter also asked for headphones earlier today, and we were told that it may not be possible, because of the video setup. I had requested at that time, and just would request again, if it's going to aid him that we could take a break, get him the necessary headphones so there is not a problem hearing the witness.

MR. BRUNET: I'm open to any solution that would make this process faster or easier for the interpreter; perhaps by moving him closer to the witness as well, if the parties are in agreement with this, or if we can get some headphones, I don't know if the technicians can do that.

THE INTERPRETER: May I make a comment, sir? Yes, I have here a loudspeaker, okay, that I can manipulate with my hand; however, it's a question of the quality of the sound coming out, and also the nearness of the witness to the microphone. And so I have to pay very close attention because sometimes there's a little bit of a disparity in that.

MR. SUH: We could have the witness and the translator sit next to each other, that might be a solution.

THE INTERPRETER: We could do that as long as I also have a microphone available.

MR. DUNN: Let me make a suggestion. Let's continue to lunch this way, and we'll do the best we can until then. And then at lunch, we can have Mr. Debbaudt sit right next to the witness if we can get a microphone. And I think that might solve some of the problem.

May we continue?

MR. SUH: Oh, yes.

MR. DUNN: Mr. Debbaudt, may I ask you to listen to her carefully, because I'm understanding from our other French witnesses that some of the words did not get translated properly, including the word "isotope." And so when you listen to her, if you have any questions, please clarify it with her. That, we need to have. Because of the nature of the testimony, some of the terms are very precise. And it's important that we have exact --

THE INTERPRETER: I understand that,

and that was one of the reasons that I had asked -- requested the headphones because of the quality of the loudspeaker and the fact that she talks in a rather low voice. It may have been some word that escaped me.

MR. DUNN: Let me make a suggestion then so that we don't have any question about what is being said and what is being interpreted or translated. That we take a break now and get that headphone set up or have him sit right there, so that there's no question about -- is that okay with you?

MR. BRUNET: Before we break, can I have a confirmation from the technicians that getting a headphone now is possible?

CAMERAMAN: We're just the cameramen.

UNIDENTIFIED SPEAKER: We're having Maureen call in. She will have someone come in.

MR. DUNN: As a backup, Plan B, if the interpreter could sit right next to the witness, that would be great.

MR. BRUNET: What about taking an early lunch so we can get that straightened out and start after lunch?

Okay. So we'll be back in an hour.

THE INTERPRETER: And also, if they could put a microphone for me, so everybody can hear me.

(Recess taken from 11:30 a.m. to

12:50 p.m.)

MR. BRUNET: Welcome back, everyone. I see we have the interpreter seated at a different location. Are we ready to resume?

MR. DUNN: We are, Mr. Chair.

MR. BRUNET: Thank you. Please proceed.

Q. (By Mr. Dunn) Ms. Mongongu, do you understand you're still under oath?

A. (By interpreter) Yes.

Q. Before the break, we were talking about your employment at LNDD, and you were describing what you did as an intern. Let me just ask you a few questions. While you were an intern, did you perform sample preparations for IRMS?

A. Yes, I would prepare samples within research records.

Q. Did you operate and read the GC/MS?

A. Yes.

Q. Did you operate the IRMS machine?

A. Yes.

Q. Did you have the opportunity to read and interpret the IRMS data?

A. Yes.

Q. And then in September -- you started as an intern in July 2003?

THE INTERPRETER: In July?

Q. July of 2003?

A. Yes.

Q. And when did your position change to analytical chemist?

A. In September of 2003.

Q. How long did you act as an analytical chemist?

(Interpreting.)

THE INTERPRETER: Okay. May I ask a question?

(Interpreting.)

A. She did it starting in 2006, she was promoted in 2006.

MR. BRUNET: Mr. Interpreter, the Chair is speaking to you. I just want to remind you to translate as precisely as possible the words within the context that you hear them, and

again in the first person as if you were the person testifying.

THE INTERPRETER: I'll do that.

A. (By Interpreter) Okay. I worked as an intern; then I was promoted to the supervisor position in January of 2006.

Q. What were your duties as a supervisor of analytical chemistry?

A. Yes, she supervised the work of that area.

Q. And did you conduct IRMS analysis?

A. Yes, absolutely.

Q. And did you perform or implement quality assurance measures?

A. Yes, absolutely.

Q. And were you in charge of managing the lab measurement equipment?

A. Yes. I was in charge of the use and of the calibration of the instruments.

Q. And did you perform any evaluation of analytical methods?

A. Could you repeat the question, please?

Q. Did you evaluate analytical methods?

MR. BRUNET: Pardon. Analytical methods.

(Interpreted by Mr. Brunet.)

THE INTERPRETER: Okay. I understood the reverse.

A. (By Interpreter) What do you mean by analytical methods?

Q. Well, did you have any involvement in developing analytical methods or improving analytical methods?

A. Yes.

Q. Now, let's turn to your other qualifications besides your education, your multiple graduate degrees.

First of all, would you estimate for me over your career how many --

MR. BRUNET: Mr. Dunn, I'm sorry to interrupt. Perhaps if you could cut mid sentence to allow the interpreter to translate as you go along, because it may become challenging as well. Thank you.

MR. DUNN: Thank you.

Q. Please estimate for me over your career how many IRMS analyses you have been involved with.

A. About 400 or such.

Q. When you were training and learning

your trade for your profession at LNDD, did you receive instruction or training from people at the lab or outside of the lab?

A. Yeah, I was trained by the analyst who was there prior to me. And I was also trained afterwards by engineers of the company who used those instruments.

Q. Were you trained on how to --

MR. BRUNET: Excuse me. Not "used those instruments" but where the instrument was manufactured. It's a technical point. It's important.

Q. Were you trained in how to verify that the IRMS equipment was operated properly?

THE INTERPRETER: May I interject here? May I ask her to speak a little bit clearly so I can hear her? She has a tendency to mumble. Is that okay?

Q. Ms. Mongongu, speak as clearly as you can. I don't hear the mumbling, but you must, obviously. So, let's go slowly, and we'll do the best that we can.

Let's turn now to the Stage 17 analysis that you performed in the summer of 2006.

A. Yes.

Q. Could you take a look at Exhibits 24 and 25.

MR. BRUNET: Just a moment, please.

Q. Are you there?

THE WITNESS: Mm-hm.

Q. First of all, what is Exhibit 24?

A. (By Interpreter) It's the analytical file, and it's the file on the Sample 295.

Q. Could you turn to Page 24.

Ms. Mongongu, go back, and the sample number that this document package A refers to is what sample number?

A. Yes, the Number 995 and 474.

Q. I think, for now, if you could understand my questions in English, give her a second to try that, and if you can't, have him translate. But we're going to move it along.

A. Okay.

Q. And a lot of this you can do in English. So we're going to do that now, okay?

All right? So we've now established that Exhibit Number 24 is document package A. And does this reflect the IRMS analysis you did

of Mr. Landis' urine sample in the summer of 2006?

THE WITNESS: Oui.

Q. Look at Page 24, please. Can you tell us what this page is?

A. (By Interpreter) It's the receipt for the sampling.

Q. And does it show who received it and what time and what day?

A. At the bottom of the page, at the bottom of the page, on the 6th of July at 9:35, there was a name there, which I didn't catch.

MR. BRUNET: Just for the record, it was 20th of July 2006 at 9:35.

THE INTERPRETER: Okay, yeah. The 20th of July.

Q. Mrs. Mongongu, this sample was received on July 20th, 2006 at 9:35; is that correct?

THE WITNESS: Mm-hm.

Q. And it was received by a Ms. Rahali; is that correct?

THE WITNESS: Oui.

Q. And do you know Ms. Rahali?

THE WITNESS: Mm-hm.

Q. And is she an employee of LNDD?

THE WITNESS: Mm-hm.

Q. Take us through what you did with respect to this A Sample of Mr. Landis' urine.

What I'd like you to start with is, first of all, tell me, what is the trigger for you to conduct IRMS confirmation? What first occurs in the lab that causes you to even look at the sample for exogenous steroids?

(Witness answering in French.)

THE INTERPRETER: I'm going to ask her to repeat that.

A. (By Interpreter) She does a mass analysis, and she makes a report regarding that, and if it's a more than four, if it's superior to four.

Q. Let me go back, and let's try to do this in English.

Is it true that the first thing that is done that triggers your IRMS analysis is that somebody else in the lab conducts a T/E screen?

THE WITNESS: Oui.

Q. And what value does the T/E screen need to be before you conduct your IRMS analysis?

A. (By Interpreter) The report on that should be more than four, about four.

Q. Do you know who did the T/E screen at LNDD for the A Sample?

A. (Witness spoke in French.)

Q. Could you go to Page 54?

A. (Witness spoke in French.)

Q. Esther Cerpolini?

THE WITNESS: Yes.

Q. And what value did she report for the T/E screen?

A. (By Interpreter) Reported on that, it was 4.9.

Q. Ms. Mongongu, who reported the 4.9? Mrs. Mongongu, in English -- excuse me, Mr. Debbaudt -- what value did Esther Cerpolini report for the T/E screen?

A. (By Interpreter) 4.9.

Q. And if you can say it in English, go ahead and say it in English too. 4.9?

THE WITNESS: Oui.

Q. And because that is greater than 4.0, you conducted an IRMS analysis; is that correct?

THE WITNESS: "Absolument".

Q. At the time that you began your IRMS

analysis of the Sample A, did someone else at the lab conduct T/E confirmation?

THE WITNESS: Oui.

Q. And who was that?

You want Page -- you can go to Page 4 or Page 101.

THE WITNESS: Which page, please?

Q. Page 4 or 101.

Go ahead and start with 4.

And Mrs. Mongongu, from this point forward, until I say otherwise, if it's okay, we will speak in English, and then when you need translation, we will do it that way.

I'm sorry. Why don't you go to Page 101.

Page 101 of Exhibit 24.

Does that answer the question I asked about who conducted the T/E confirmation and what value they reported?

A. (Witness answered in French.)

Q. In English, please.

THE WITNESS: Perhaps of the people who ran the -- during the IRMS at LNDD.

Q. See the initials on the bottom

right-hand corner? Are those Esther Cerpolini's? The bottom right-hand corner?

A. Yeah, that's her initials.

Q. Does that indicate that Esther

Cerpolini completed this form?

THE WITNESS: Oui.

Q. And what value did she report for the ratio of testosterone to epitestosterone on this page?

A. (Witness spoke in French.)

Q. In English, please. 11.4?

A. (By Interpreter) 11.4.

Q. Okay. Now, I want you to take me through your involvement with doing the IRMS analysis of the A Sample.

From the first time you took an aliquot on July 22, until you finished your analysis two days later. And that's a big question. But I want you to break it up in chunks, and start with the very first thing you did. And you probably want to talk in French.

THE WITNESS: Okay.

MR. BRUNET: Ms. Mongongu, please speak loud so that the interpreter can hear you, and I can hear you too.

THE WITNESS: Okay.

Q. While you're looking at that, did someone serve as the verifying scientist for your analysis of the A Sample?

(Interpreting.)

THE WITNESS: Oui.

Q. Who was that?

THE WITNESS: Corinne Bouisson.

Q. Is she here in the courtroom?

THE WITNESS: Oui.

Q. Could you point her out to us?

THE WITNESS: Over there.

Q. And what does a verifying scientist do, Ms Mongongu?

A. (The Interpreter) She verifies the file that is made up by -- by the what -- verifies the file that is made up by the analyst.

Q. Did you also serve as the verifying scientist for the IRMS analysis of Mr. Landis' B Sample?

THE WITNESS: Oui.

Q. Well, let's just start by you just describing for us the three or four basic steps that go into the performance of an IRMS

analysis. If you could just give us the three or four, and then we'll circle back and talk about each.

A. (By Interpreter) The first phase is the preparation of the sample which lasts about an hour and a half.

MR. BRUNET: I'm sorry, it's not an hour and a half; it's a day and a half.

THE INTERPRETER: I heard an hour and a half. A day and a half. I'm sorry.

MR. SUH: Mr. Chair.

MR. BRUNET: Mr. Suh?

MR. SUH: I hate to interrupt, but it just seems at this juncture that we are open to suggestions about how to proceed. I think the difference between a day and a half and an hour and a half -- I mean even I heard a day and a half from my very fractured French from very many years ago. So, I don't know how -- it doesn't seem to be the right way to proceed, given that we do have such significant translation issues.

MR. BRUNET: I take your point, Mr. Suh, and I have a tendency to agree.

I understand that, Mr. Debbaudt,

this is challenging; this is very technical. However, the issue of the interpreters is left to the parties to resolve. I think the Panel would be open to suggestions.

MR. SUH: I certainly don't want to speak for USADA, but I believe that they have arranged to have another interpreter present in a period of time, and that is not too far off in the future.

I'm wondering whether or not we would agree to --

MR. BRUNET: Would you like this Panel to recess for five minutes and discuss with your colleague?

MR. SUH: Perhaps. Why don't we do that?

MR. BRUNET: Let's break for five minutes. Thank you.

(Brief recess.)

MR. SUH: Mr. McLaren, would you like to advise the audience of the current state of our schedule?

MR. MC LAREN: We're just going to adjourn -- is this on -- we're just going to adjourn and await the arrival of another

translator, who should be here at approximately 2:00. So we're adjourning until then.

(Adjourning at 1:15 p.m. to 2:31 p.m.)

MR. BRUNET: Welcome back, everyone. I believe we have an interpreter. But you have a brief statement to make first?

MS. PALMER: Just briefly, and that is, I always look over terminology before doing something, because even before I've done similar things, you want to be up to speed. I've not had the chance to get up to speed, so I might be winging it slightly. And if anybody wants to jump in, if they feel there is something, I accept that, because of the sudden thing.

I'm really distressed that I wasn't

given at least an hour to go over this -- but I understand. Now that I see the room, I understand the urgency of it. Thank you very much.

And my name is Martitia Palmer. And I'm registered with the Judicial Council of California.

MR. BRUNET: Thank you. We're happy to see you here with us.

MS. MARTITIA PALMER: We'll see.

WHEREUPON,

INTERPRETER MARTITIA PALMER,

the interpreter herein, having been first duly sworn to translate from the French to English language the testimony given herein, testified on her oath as follows

(The following answers reflect the responses from the witness through the interpreter unless otherwise noted.)

EXAMINATION (cont'd.)

Q. Bonsoir, Ms. Mongongu.

A. Bonsoir, bonjour.

Q. When we broke, we were talking about the three steps of IRMS -- IRMS analysis.

You were telling me about the first step. Could you continue, please.

A. The first step was the preparation of the samples, and then the second step was the GMS analysis for the identification of the compounds.

And then the third step consisted in a ERMS analysis.

Q. IRMS?

THE INTERPRETER: IRMS, sorry.

Q. We're going to talk about the first

step, but before we do that, I want you to tell me what security measures LNDD has in place.

THE INTERPRETER: May I interrupt a brief moment? Do you want me to be interpreting loudly to her, or do you want me to just do that off?

Q. No, I want you to interpret it out loud, if the Panel wishes. But, if you could let me -- I'm going to try to speak in little bits --

THE INTERPRETER: Yes.

Q. -- segments, so if you could let me finish before you start to translate, that would be great.

THE INTERPRETER: Yes, Counselor, as long as it's not too long, so I don't have to remember it.

Q. If it gets too long, please let me know.

THE INTERPRETER: I'll raise my hand. Thank you.

Q. Thank you. Now, can you please describe the security measures that LNDD has in place at its Paris lab?

A. There's a first entry into the

laboratory, a first entry where you have to use your badge, and then there's a second entrance where you also have to use a badge.

Q. When you say a badge, are you talking about a key lock?

A. It's a card, a swipe card.

Q. Proceed.

A. And then there's a third access to the laboratory with the same card, same swipe card.

Q. If you're in the laboratory area, are you required to be escorted by an LNDD employee?

A. You mean somebody from outside the laboratory?

Q. If a third-party, yes, outside the laboratory?

A. Yes.

Q. Now, regarding sample preparation, how long does it take?

A. About a day and a half for the preparation of the samples.

Q. And do you follow a special standard operating procedure in the preparation?

A. Absolutely. We have a very specific

method for preparing the samples.

Q. Is that by chance SOP M-EX-24? If you would look at 106 through 110 in Exhibit 24.

MR. CAMPBELL: Mr. Dunn, could you repeat that number?

MR. DUNN: It's a USADA number, Mr. Campbell? 106 through 110.

A. All right.

Q. Is that the standard operating procedure for preparing samples?

A. Absolutely, yes.

Q. Are there instructions in addition to a standard operating procedure?

A. Yes, there are instructions which give basically guidelines to follow when you are preparing the samples.

Q. Are those instructions in Exhibit 24 at Pages 110 through 118?

A. That's correct, yes.

Q. Now, in conducting the sample preparation for Mr. Landis' sample, did you follow the standard operating procedure and instructions we just identified?

A. Yes.

Q. You also served as the verifying

scientist for the IRMS analysis of the B Sample, correct?

A. The last one.

Q. B Sample?

A. Yes.

Q. And did you follow the same sample preparation SOP and instructions for that?

A. No, because I did not prepare those samples.

Q. Oh, did -- I'm sorry. Thank you for the correction. Who did prepare the B Sample for analysis under IRMS?

A. Claire Frelat.

Q. And you served as her verifying scientist on that?

A. Yes.

Q. Did you verify that Mrs. Frelat had followed the standard operating procedure instructions for sample preparation?

A. Yes. Yes, she did follow the operating procedure in place.

Q. During sample preparation, Ms. Mongongu, do you inject any steroid other than 5-alpha androstenol?

A. I'm not sure I understand the

question.

Q. During sample preparation, do you prepare the sample for an internal standard to use during the sample analysis?

A. Well, we add an internal kind of

standard in the preparation of the sample.

Q. And is that internal standard, does it consist of any steroid other than 5-andro -- -alpha androstenol?

THE INTERPRETER: Counsel, you're going to have to wait. I can't remember that particular term. So if you would just get to the end and wait a second, I appreciate that. Do it again.

Q. Does the preparation of an internal standard include the use of any steroid other than 5-alpha androstenol?

A. No, there's only 5- -- was it alpha-androstenol?

Q. Did you document the steps you followed in performing the sample preparation?

A. Yes.

Q. Is that document reflected at Pages 119 through 122 of Exhibit 24?

A. Yes.

Q. After you finished the sample preparation, what's the next step in the IRMS analysis?

A. It's the GC/MS analysis.

Q. What's the purpose of the second step involving GC/MS?

A. It's the step to allow the identification of the molecules.

Q. And do you verify that the GC/MS instrument is operating properly?

A. Absolutely. Before any analysis is performed, we always verify the performance of the state of the instruments.

Q. And you did that with respect to Mr. Landis' A Sample?

A. Yes.

Q. And you verified that Mrs. Frelat had done it with respect to Mr. Landis' B Sample?

A. Yes.

Q. Tell me how you go about verifying that the GC/MS instrument is operating properly.

A. Well, first of all, the first thing you do is to control and make sure that the MassLynx is functioning properly, the ion source

is functioning properly.

The second step is to check on whether there are any escapes --

MR. BRUNET: Leaks.

A. -- leaks.

Q. And what is the third step?

A. The third step is an injection of standards to see if the machine is able to check the performance of the standards.

Q. And what is the compound that you inject at this point in the GC/MS?

A. In fact, it's a solution of several molecules. You're going to have 5-alpha androstenol acetate, the etiocholanolone, the androsterone, the 5-alpha androstenediol diacetate.

Q. When you -- I'm sorry.

A. And 5-alpha androstenediol. And then -- oh, yes, 11 etio- --

THE INTERPRETER: Eticocholay-lo-lo-lo, something like that. I'll learn that by the end of the day.

MR. BRUNET: Actually, I think the last two were in English.

Q. In the case of Mr. Landis' A Sample,

did the ion source check out okay?

A. Yes.

Q. Did you verify that there were no leaks in the instrument?

MR. SUH: Mr. Chair, before we proceed further, I believe that the steroid acetates that the witness was describing or actually has -- I heard the translator say diacetate after 5-beta-androstanol, but I didn't hear the acetate, the AC which follows the 5-alpha etio and andro.

And for clarification sake, I think we should either make sure that the witness is saying that properly or the translator is understanding properly, because these are not the target analytes that are coming directly from the testosterones. These are the standards which are acetates. And that's why the 5-beta androstanediol is a diacetate, and the others should also have the suffix "acetate" after them, and we can refer to that suffix as "AC."

MR. BRUNET: So what are you suggesting you want to abbreviate?

MR. SUH: Just for clarification, it might be easier for purposes of our hearing to

call 5-alpha androstanediol as 5-alpha; 5-beta androstanediol as 5-beta; etiocholanolone as etio; and androsterone as andro. And then when it's acetate, say "AC" afterward. In other words, 5-alpha AC, instead of -- it just might make things clearer as we go through.

MR. BRUNET: As long as the witness is comfortable with that terminology.

Mr. Young, do you have --

MR. YOUNG: I think they're all acetates.

MR. SUH: That's my point. They are acetates, and that I didn't hear the witness say, or the translator say, that they're acetates. I only heard diacetate after the 5-beta-androstandiol.

THE REPORTER: Wait, wait. I can't

get everyone.

MR. SUH: I could call them Bill, Charlie, Fred and Joe. But if we just shorten it up, and then when it's acetate, as it is in the standard, call it that, AC; and then when it's the target, I would just refer to it without the AC.

MR. YOUNG: But they acetylate the

targets, and so when they analyze them, they're acetates too. That's the confusion that I don't want to have happen.

THE INTERPRETER: I will try to be a little clearer, Counsel.

MR. BRUNET: These are very technical terms. I think it's best that, at this point in time, we use the full terms. But I think that your observation is well noted that the interpreter has to interpret the whole name.

MR. SUH: I'm fine with saying the whole name. It was just a suggestion to make sure that we -- to make it go quicker, but in any case...

MR. DUNN: May I proceed?

THE INTERPRETER: I'm just asking the witness to be very clear when she says it, to help me out. Thank you.

Q. Okay. Let me -- let me -- if it's okay now?

You verified that the ion source checked out, correct?

A. Yes.

Q. You verified that the instrument was not leaking, correct?

A. Yes.

Q. And you verified that the instrument is able to detect --

A. Yes.

Q. -- the seven compounds of interest.

A. Yes.

Q. And you did that with respect to Mr. Landis' A Sample?

A. Yes.

Q. Did you verify that Claire Frelat had done the same with respect to Mr. Landis' B Sample?

A. Yes.

Q. Okay. Now that you verified that the GC/MS instrument is operating properly, what did you do next?

A. After that, I inject the samples that were prepared into the instrument.

Q. And how long does that take?

A. It takes about three hours for the analysis to be complete.

Q. And when you perform those injections or the machine performs those

injections, is there a particular sequence of
compounds that are injected?

A. Yes. The sample is prepared at the same time as the blind urinary.

Q. It's a blank.

THE INTERPRETER: A blank urinary, okay.

A. And then as far as the injection is concerned on that level, each fragment of the sample -- each fraction of the sample will be analyzed after the corresponding fraction of the urinary blank has been done.

Q. Could you turn to Page 129 of Exhibit 24.

THE INTERPRETER: I'm sorry. Attachment?

Q. Exhibit 24, Page 129.

Ms. Mongongu, does Page 129 reflect the sequence of the injections you made?

A. Yes.

Q. Okay. And as I read this, the first injection is a substance called mixed AC01 --

THE INTERPRETER: I'm sorry. Could you repeat that last one?

Q. Mixed AC01.

A. Yes, mixed AC01.

Q. What is that?

A. That's the mixture that I spoke of before which contains the seven complexes that are of interest. Compounds.

Q. Is that the internal standard?

A. No.

Q. Is it called mix cal acetate?

A. Yes.

Q. And then the next injection is from a fraction from the blank urine called F3?

A. Yes.

Q. Go back to my last question. Where it says mix AC01, that is a mixed acetate, correct?

A. Yes.

Q. And it's not mix cal acetate?

THE WITNESS: No.

Q. My confusion, sorry.

And as you go down this Page 129, you can see the order of the injections you made, correct?

A. Yes.

Q. Alternating between fractions of the blank urine --

A. Yes.

Q. -- and the athlete's urine?

A. Yes.

Q. Could you turn to Pages 130 through 145. Just flip through Pages 130 through 145, and then I'll have a question for you.

Can you go through them and tell me what those pages represent?

A. So what Page 130 is, it's the GC/MS ratio report.

Q. Okay. I think maybe to short-circuit this a little bit.

Are the data from the preIRMS confirmation -- excuse me. Strike that.

Are the data from the preIRMS compound identification reflected on Pages 130 through 145?

A. Yes.

Q. Could you turn to Page 122.

I'm sorry. I have the wrong page reference.

Page 174. What does this page represent?

A. This represents the recording, the registration, of the verification of the various performances of the IRMS.

Q. So now we're into the third step of

the IRMS process.

A. Yes.

Q. Take us through that step. And begin, if you would, with the instrument verification process you followed.

A. The three -- follow what procedure?

Q. Would you just tell us what you did to verify that the instrument was operating properly during your analysis of Mr. Landis' A Sample?

A. All right. The first step is to verify that the instrument is properly set in order to be able to verify the carbon, the CO2 carbon. And then the second step is to verify that it's stable; and when I say stable, I mean, that means to verify that each time that we have introduced into the instrument the same quantity of gas by reference that we will be given the values according to the specifications, the specs.

After that, we then verify the precision of the instrument, and that is to verify that the instrument is capable of giving the same measurement for the same exact analysis. So these steps consist of injecting

three times the same solution containing four alkalines.

THE INTERPRETER: Alkanes. Sorry.

A. And then we have to verify that the types of -- that the standard deviations are within the specifications obtained.

And then we proceed with the

calibration of the instrument. And that means we will be injecting a mix which contains acetate compounds and of which -- which isotopic values are certified in order to verify the fact that the instrument is functioning perfectly.

Q. Now, after you performed all these instrument verification steps -- let me rephrase that.

In analyzing Mr. Landis' A Sample, did all of these controls and verifications check out?

A. Yes, all the verifications were within the specifications.

Q. Are you sure of that?

A. Yes.

Q. And did someone verify that you had done this part of the analysis correctly?

A. It was verified by my scientific

verifica- -- comptroller or checker, verifier.

Q. By Mrs. Buisson?

A. Madam Buisson.

Q. And did you record the verification and controls checks that you made anywhere in the A pack?

THE INTERPRETER: The verification? I'm sorry.

Q. That she had performed.

A. Yes.

Q. And is that on Page 175 of Exhibit 24?

A. Yes, it's on Page 114 and 115.

Q. Are you looking at the USADA numbers, Ms. Mongongu?

A. Yes.

Q. Okay. So is it on Pages 174 and 175?

A. Yes.

Q. If you could, look at Page -- Page 175 in the middle box -- I'm sorry. The top box is labeled --

Well, maybe, I could get up there.

Just a few questions on USADA Page 175.

When you verified that the control standards that you used fell within acceptable ranges, would you explain that? And specifically, could you just tell us, to begin with, what is this number here?

A. That is the number of the data.

Q. Okay. What does it represent, 007?

A. It's the data number after the acquisition on the instrument.

Q. For which compound, the blank urine or the --

MS. MONGONGU: For the mix cal acetate.

A. For the mix cal acetate.

Q. And this number here, data 14, what is that?

A. It's the data number of the mix, of the mix cal acetate, that was injected at the end -- at the end of the sequence.

Q. And what do you do with these two numbers, Ms. Mongongu?

A. I look on the level of my 007 data, and then I look to see if the isotopic value is included in the -- within acceptable values which are, in fact, right below that.

Q. So if I could repeat, then, for example, you verify that this number falls within this range?

A. Yes.

Q. And you did the same for this number and that range and so on?

A. Yes.

Q. And after you verified it for all four, you checked that box?

A. Yes.

Q. Now, if you would turn to Page 185. What is Page 185 if you turn to it?

A. It's the final documentation of the analysis; in other words, the final results.

Q. And it consists of two pages, 185 and 186, correct?

A. Yes.

Q. Okay. Just a couple quick questions on 185.

Okay. See this number here, Ms. Mongongu, 31.64. What does that represent?

A. It's the isotopic value obtained for internal standards.

Q. And the number that's reported there, 31.64, if you go back to Page 175 --

let's see here -- if you can remember that number, 31.64?

A. Yes.

Q. Now that number, 31.64, falls outside of that range on Page 175.

A. Yes.

Q. Is that a problem?

MS. MONGONGU: No.

A. No.

Q. Could you tell us why?

A. Because when it comes to samples, the internal standard -- the internal standard is used to calculate the relative retention times of the molecule. And that value is not exploitable for the simple fact that it is situated at the start of the chromatogram where there is a matrixital interference?

Q. Matrix.

THE INTERPRETER: Matrix? Matrix.

A. -- which is more important at the beginning of the chromo, and so we don't have an acceptable criteria for those standards, for those internal standards.

Q. Are the values reflected on Page --

MR. SUH: Before we go on, I just

want to make sure that the translation was not "matrixital," but matrix interference, to say that the start of the chromatogram, because there was matrix interference.

THE INTERPRETER: Matrix interference. Yes, matrix interference. Thank you, Counsel.

MR. SUH: Thank you.

Q. Ms. Mongongu, a few minutes ago, you said that LNDD did not have an acceptable criteria for this internal standard. Did I hear you right? Or was an acceptance criteria?

A. No, it's an acceptance criteria.

Q. Thank you.

THE INTERPRETER: Thank you, Counselor.

Q. Now, does the fact that this number, 31.64, falls outside of this range here, does that have any effect whatsoever on the validity or reliability of your IRMS conclusion?

A. No.

Q. Now, we've gone through the process

of the first, second, and part of the third steps, and we're in the middle of the third step which was the actual IRMS analysis.

After you perform all of these quality control and instrument verification tests, describe for us the remaining steps of the process.

A. The steps afterwards?

Q. After you do all of the performance checks on the machine and you ensure that it's operating properly, what is it that you next do?

A. After we've done the IRMS, the analysis, and that we have verified that the instrument is working correctly, then I inject the samples into the IRMS.

Q. And how long does that process take?

A. To analyze an IRMS?

Q. To complete the injection and the further steps of the analysis.

A. Several hours.

Q. And then what do you do?

A. Well, once the acquisition has been done, then I take each data and then I perform a procedure on the data. The procedure consists of verifying the sound, the background sound. The background sound.

DR. BOTRÉ: Noise --

A. The background noise on the level of

the sample and then to verify that the chromatograph peaks are correctly integrated.

Q. Is that process called data reduction?

A. Yes.

Q. And for Mr. Landis' Sample A, did you perform that data reduction yourself?

A. Yes.

Q. And did Mrs. Buisson verify your calculations or your results?

A. Yes.

Q. And if you would please look at Page 185, which I'm -- 186, which I'm displaying.

Are these the results of your final step of the IRMS analysis?

A. Yes.

Q. And can you just point to us where on this piece of paper the final results appear? Is it this box here?

A. Yes.

Q. Okay. And what are these two on the side?

A. That is the application of the measurement uncertainty.

Q. Okay. And did you, based on this

table, determine that Mr. Landis' A Sample was positive for exogenous testosterone?

A. Yes.

Q. And which values on this table were they?

A. Andro, 11, the second line, andro, ketioetio.

Q. That line?

MS. MONGONGU: Yes.

A. Yes.

Q. And the other?

A. And the adiol

Q. So is that the reason in the last sentence under Conclusion, you conclude that Mr. Landis' A Sample was positive for exogenous testosterone?

A. Yes.

Q. Now, there's a table up above here. Do you see that actually, this table. Do you see that?

What is that table about?

A. Those values are the values of a particular population that was established or set in the laboratory.

Q. Now, do these values have an effect

on your ultimate conclusion?

A. Absolutely not. No.

Q. Does that mean that if you had answered all of the questions that are asked here "no," that your results and conclusion would have been the same?

A. No. Well, yes, the conclusions would have been the same.

Q. Okay. Irrespective of whether you answered those questions "yes" or "no"?

A. Yes.

Q. Now, can you please turn to Exhibit 112. Do you have that in front of you? Do you see that, Ms. Mongongu?

MR. SUH: Can you give us a moment to get ahold of it?

Q. I'm sorry. Are you there?

What is Exhibit 112? I'm sorry. There's some numbers at the bottom, LNDD 603 through 609?

MS. MONGONGU: Oui.

A. Yes.

Q. What is this document?

MR. BRUNET: Excuse me. Mr. Dunn, are you referring to USADA 0112?

MR. DUNN: No, I'm referring to Exhibit 112, and it's LNDD 0603.

MR. BRUNET: Are they USADA exhibits?

MS. SLOAN: It's in the binder

marked Exhibit 110. That contains all those exhibits.

MR. BRUNET: And the page again, please.

MR. DUNN: LNDD 603.

0603. Have you got it, James? Is everybody there? Panel?

MR. BRUNET: Yes. Please, go ahead.

Q. What is Exhibit 112, Pages 603 through 605?

A. The operational method to verify the data has been acquired.

Q. And did you follow this operating procedure with respect to Mr. Landis' A Sample?

A. Yes.

Q. And did Ms. Frelat follow it with regard to the B Sample?

A. Yes.

Q. And you verified that? You verified that Mrs. Frelat had followed it?

A. What do you mean "verified"?

Q. You were the verifying scientist on the B Sample, and you verified that Mrs. Frelat followed this same SOP?

A. Yes.

Q. Okay. Now, what other standard operating procedures did you follow in the IRMS analysis besides the ones we've already talked about?

Could you specifically turn to, in Exhibit 24 now, Pages -- USADA 153 through 154.

Let's see. I'm sorry. I have the wrong page references. Just give me one second.

Do you know where the standard operating procedures are in the A package for the preIRMS compound identification?

A. Yes.

Q. Okay. Where are they?

A. Let me just have a look here.

Q. Could you look at Page 0124.

A. 0124.

Q. Are you there?

A. Yes.

Q. Is that the procedure for the GC method you followed?

A. Yes, that is the method of analysis.

Q. And you followed that in conducting your work here.

A. Yes.

Q. And Mrs. Frelat followed it in doing the B Sample?

A. Yes.

Q. And the standard operating procedure you followed in performing the third step of the IRMS analysis, what pages are those?

A. 0153.

Q. Page 153?

A. Yes.

Q. Okay. And that's the procedure that you followed for the IRMS analysis?

A. Yes.

Q. When you conducted the analysis of Mr. Landis' sample, did you have any idea it was Mr. Landis' sample?

A. No.

Q. Were you following the Tour de France during the time that you performed the analysis on the A Sample?

A. No, I didn't really follow the Tour, because I'm not really a big fan of cycling.

Q. Did anybody tell you that Sample 995474 was Mr. Landis'?

A. No.

Q. Could you turn to Page USADA 0021?

THE INTERPRETER: Zero, zero, what, please?

Q. 21? Are you there?

A. Yes.

Q. At the time you performed your A Sample analysis or reported the results, have you seen this page?

A. No.

Q. Now, the operating things -- a couple of the things on the IRMS analysis for the A Sample. Was the IRMS machine operating at the proper pressure?

A. Yes.

Q. And how do you know that?

A. Well, if the pressure had not been correct, you would not have had the stability of your instrument. You would not have had a precision of the instrument. The values would have been all over the place, and when we analyze the samples -- so, in other words, when we analyze the samples, we verified all of these

various parameters.

Q. Who manufactured the IRMS machine you were analyzing Mr. Landis' samples on?

A. It was MicroMass which has now become GV Instruments.

Q. Did you receive any training from MicroMass on the operation of the IRMS unit?

A. Yes.

Q. Who was the person?

A. Well, the application engineer, Pasquel Parmentier, P-a-r-m-e-n-t-i-e-r.

Q. And when he taught you about the proper use of the machine, did he actually come to the LNDD lab?

A. Yes.

Q. And did he verify that the machine was operating under the proper pressure?

A. Yes.

Q. Was that pressure different than what was indicated in the manual that came with the unit?

THE INTERPRETER: Sorry, Counsel. Can you repeat the question?

Q. Did -- we'll call this the IsoPrime 1 machine. And that's the machine you analyzed

Mr. Landis' A Sample on.

A. Yes.

Q. And that's the same machine on which his B Sample was analyzed.

A. Yes.

Q. And when you received that machine, it came with an operating manual, correct?

A. Well, there wasn't a brochure, an instruction brochure, for the IsoPrime.

Q. Okay. So, but in any event, the MicroMass trainer had independently verified that the machine was operating at the proper pressure?

A. Yes.

Q. Let's turn a little bit more to the B Sample now. With regard to the B Sample, do you recall when that analysis occurred?

A. I didn't do the analysis of the B Sample. I didn't perform that.

Q. Right. And do you know when

Mrs. Frelat performed the analysis of the B Sample?

A. It was at the beginning of August of 2006.

Q. Would you look at Exhibit 25.

Is Exhibit 25, Ms Mongongu, the documentation packet that was compiled after LNDD analyzed the B Sample?

A. Yes.

Q. Now, you mentioned that you were not involved in the analysis of the B Sample, correct?

A. Yes.

Q. But you did verify the results?

A. That's correct.

Q. Did you break the seal on the B bottle?

A. Yes.

MS. MONGONGU: No.

A. Oh, no.

Q. Okay. That's clear.

Did you measure the pH or the specific gravity on the B bottle?

A. No.

Q. Did you make aliquots from it for T/E or IRMS analysis?

THE INTERPRETER: I'm sorry. The aliquots for what?

Q. For the T/E or the --

THE INTERPRETER: Or the?

Q. Or the IRMS?

A. No.

Q. And did you prepare the sample for IRMS?

A. No.

Q. Did you verify that the instruments were operating properly for the B Sample?

A. No.

Q. Did you perform the instrument verification?

A. No.

Q. Did you handle the B Sample or any aliquot?

A. No.

Q. Did you process the data from the B Sample analysis?

A. No, none.

Q. Mrs. Frelat did that?

A. Yes.

Q. And Mrs. Frelat also reported the data from the IRMS analysis?

A. Yes.

Q. Okay. And you verified that the data that Mrs. Frelat reported was accurate?

A. Yes.

Q. Could you turn to Pages 323 to 325 of Exhibit 25. I'm sorry. 351 to 352. Are you there?

A. Yes.

Q. Do Pages 351 and 352 present the results of the B Sample analysis?

A. Yes.

Q. A couple of questions on Page 352. Are the results for the delta/delta values for the B Sample contained in this column?

A. Yes.

Q. Okay. And could you explain -- I forgot to ask you this on the A Sample -- what the positivity criteria are for declaring a sample positive for exogenous testosterone?

(Interpreting.)

Q. What are they?

A. Well, we declare a sample positive when the difference between the metabolite and the reference compound is superior, or higher -- is higher than 3 plus the uncertainty of the measurement, so, therefore, 3.8. Yes.

Q. When you mentioned the uncertainty of measurement, is that what you're referring to?

A. Absolutely, yes.

Q. And the values that we were talking about earlier, those are the delta/delta values reported for the B Sample?

A. Yes.

Q. And these are the range of values after you applied the uncertainty, right?

A. Yes. Yes.

Q. And if these together are greater than the absolute number of 3, then you conclude it's positive for exogenous testosterone.

A. Yes.

Q. And in this case, the 5-alpha adiol and the 5-beta pdiol, those values were all greater than 3?

THE WITNESS: Sorry?

A. (By Interpreter) Sorry?

Q. These values meet the positivity criteria?

A. Yes.

Q. Okay. Now, the value here for andro 11-ketoetio -- ketoetio --

THE INTERPRETER: Oh, ketoetio.

Q. -- that number minus 3.51 is --

THE INTERPRETER: 3.31?

Q. 3.51; that also is greater than 3.

A. Yes.

Q. Okay. But the range that you have shows that, on the lower end, the value is less than 3.

A. Yes.

Q. Now, if you only had the value for andro 11-ketoetio, would you have declared Mr. Landis' sample positive for exogenous steroids?

A. I would not have declared it positive, no.

Q. What would you have declared it?

A. I would have declared it to be inconclusive.

Q. You would not have declared it to be negative?

A. I would have declared it to be doubtful, doubtful.

Q. Inconclusive?

A. Inconclusive.

Q. But you had more than that.

A. Yes.

Q. You had these values, and it's on that basis that you were able to conclude that

Mr. Landis' sample was positive for exogenous testosterone?

A. Exactly, yes.

Q. And this was a determination initially made by Ms. Frelat?

A. Yes.

Q. And verified by you?

A. Yes.

Q. Now, if you look at the very last sentence, I don't read French very well, but it seems to me to mention that the analysis is based on both the 3.51 --

MR. SUH: Move to object. Why not just have the translator read it?

MR. DUNN: Sure.

Could you read that last sentence.

THE INTERPRETER: If you give it to me.

MR. DUNN: Sure. Could you hand it to her.

THE INTERPRETER: The exogenous origin of the metabolites of the testosterone were objectified based on the poor -- the isotopic depletion of 3.51 percent --

DR. BOTRÉ: Per mil.

THE INTERPRETER: I'm sorry, per mil.

-- and 6.39 mil respectively for the androsterone metabolites, and 5 A androstanediol.

Q. So if your determination that the positivity criteria were met was based on the 6.39 number, why in the sentence did you also mention the 3.51 number? And by "you," I'm meaning Ms. Frelat, verified by you.

A. The positive results were based on the isotope depletion 6315 mil -- 6.39 per mil. That's it. And so, therefore, the isotope reduction observed on the androsterone, since it was superior to 3, and hence, very suspicious, the two metabolites were put into the report because one was positive and the other one was uncertain or doubtful.

Q. Now, skipping around a little bit, forgive me, but going back to Exhibit 112, which was the procedure followed for data reduction.

Now, you have in front of you, just a few questions.

When you do data reduction, actually, in this case, when you were doing data

reduction, you were using a software called OS/2 Optima, correct?

THE INTERPRETER: Alpha?

Q. OS/2 Optima.

A. Yes.

Q. Are there times when you're running that OS/2 software where you determine in your professional judgment to make manual adjustments to the information that's presented on the screen?

A. Yes.

Q. For what purpose do you do that?

A. Well, first of all, I control to see

that the software correctly checked the background noise, because sometimes it will go to peaks which are not background noise. So, therefore, I correct the error.

Q. Are there other circumstances you make manual adjustments to enhance the quality of your results?

A. Yes. Yes, on the level of the integration of the -- of the peak integration.

Q. That means the starts and the stops of the peak?

A. (Nod of head.) Yes.

Q. And why do you find it necessary or appropriate, at times, to make those adjustments?

A. Why do I find it might be necessary?

Q. Well, in this case, did you make some manual adjustments?

A. Yes.

Q. Would you tell the Panel why you did that?

A. All right. Well, as I said before, I have to look at the background noise, because sometimes the software will have background -- will add background noise on background peaks -- on peaks --

THE INTERPRETER: Just on peaks. Sorry.

A. -- which therefore falsifies the background noise, okay?

And then as far as the integration of the peak is concerned, you have the possibility of seeing the trace, let's say, of a ratio of 40 over 45, which, in fact, allows one to delineate the actual real value of the chromato- --

Q. Chromatography?

A. -- chromatography peaks.

And sometimes what will happen is, sometimes the software will insert the chromatographic peaks in an area that really doesn't correspond at all to my peak, you see.

Q. So you don't, yourself, calculate the area under the peak; the machine does that, correct?

A. Yes.

Q. You just simply set the start and the stop points.

A. When it's necessary, yes.

Q. And occasionally it was necessary with Mr. Landis' A Sample.

A. Yes.

Q. Was the effect of those adjustments to enhance the quality of your results?

A. Yes.

Q. And if you hadn't have made those

adjustments, the results would not have been reliable.

A. Absolutely. Yes, absolutely.

Q. Does Exhibit 112, the procedure you followed for data reduction, contemplate that manual adjustments of the type you described --

A. Yes.

Q. -- would be performed?

A. Yes.

Q. And when you observed Ms. Frelat doing data reduction on the B Sample, did she similarly make manual adjustments for background --

A. Yes.

Q. -- and for the start and stops at certain peaks?

MR. WEISS: Mr. Dunn, could we get a page reference? You just said Exhibit 112.

It's about 100 pages.

MR. DUNN: Oh, yeah. I had previously described it, as -- I'm sorry -- whatever it is.

MR. BRUNET: I have Page 603 in front of me.

MR. DUNN: Yeah, it's 603 through 609.

MR. WEISS: Thank you very much.

MR. DUNN: Where was I?

(Reporter repeated the previous question.)

Q. Ms. Frelat did the same thing on the B Sample?

A. Yes. Yes.

Q. And as verifying scientists, is it your opinion that the effect of those adjustments was only to enhance the quality of the data and the reliability of your results?

A. Oh, yes; otherwise, you would not do that.

Q. Now, quickly, I want to change gears a little bit.

And I want you to discuss with me the analysis you performed the week of April 16th to April 23, 2007 of Mr. Landis' other B samples. And these are samples that he provided from stages of the Tour de France, other than Stage 17, which we have been discussing previously.

Did you perform analysis of those other B samples?

A. Yes.

Q. And did any of those other B samples test positive for exogenous testosterone?

A. Yes.

Q. Tell me how many of those you did.

A. I can't remember exactly, but I believe that there were perhaps four.

Q. I'm sorry. Let me correct my question. Did any of those other B samples show the presence of exogenous testosterone?

A. You mean, are you saying in certain others?

Q. Did any of the other samples tested during the week of April 16th through 23 of 2007 show the presence of exogenous testosterone?

A. Yes.

Q. Would you please turn to Exhibit 84.

And while you're doing that, one question.

Was the software used for the April 2007 analyses of the other B samples the same software you used for the Stage 17 Sample?

A. No.

Q. What was the name of the software you used for the other data analysis?

A. MassLynx.

THE WITNESS: MassLynx.

A. (By Interpreter) The software is called MassLynx.

Q. Now, have you turned to Exhibit 84?

A. Yes.

Q. If you could turn to Page -- and

these are LNDD numbers now --

A. LNDD.

Q. -- 0725?

You got it, James.

Could you blow up that middle box, the middle box. I'm sorry. The third box.

Now, can you tell me what value shown there led LNDD to conclude the presence of exogenous testosterone?

A. It's the delta/delta -- it's the last line, 5 adiol - 5 --

Q. That number?

A. Yes.

Q. Now, did you use the same positivity criteria and range of uncertainty in determining the presence of exogenous testosterone in this sample as you did with the A Sample?

THE INTERPRETER: A Sample, Counselor? Did you say A Sample, Counselor?

Q. Yes.

A. Yes.

Q. And did you use the same positivity criteria and uncertainty here as Ms. Frelat did with the B Sample?

A. Yes.

Q. Did you follow the basic same procedures for this sample, which, by the way, is 825424? Did you follow the basic same procedures --

A. Yes.

Q. -- for this as you did the A?

A. Yes.

Q. And when I said the A, I meant the A on the Stage 17.

A. Yes, I had understood that.

Q. You too?

A. No.

THE INTERPRETER: No, I'm repeating what she said, Counsel. I wouldn't dream I understood it.

Q. Now, if you could turn to Exhibit 86.

By the way, on Exhibit 84, before you put that away, were you the operating scientist on that sample?

A. What?

Q. Did you conduct the analysis of the sample?

A. Yes, I was the one who did that.

Q. And who was the verifying scientist

on that one?

A. Corinne Buisson.

Q. And now go to 86. And this is sample Number 85 -- I'm sorry -- 825428. Go to Page 915, 9-1-5.

Could you bring that one up too?

THE INTERPRETER: 905.

Q. No, 915. Are you there?

A. Yes.

Q. Okay. Now, tell me what value on the table that is now showing that led you to conclude that this other B Sample was also positive for exogenous testosterone -- I mean, showed the presence of exogenous testosterone.

A. Yes.

Q. Okay. What number?

A. 5.06.

Q. That number?

A. Yes.

Q. Okay. And again, you applied the same positivity criteria and uncertainty as you did with the Stage 17 A Sample?

A. Yes.

Q. And as Ms. Frelat applied for the Stage 17 B Sample.

A. Yes.

Q. And again, Ms. Buisson verified your results, correct?

A. Yes. Correct.

Q. Okay. So now we have Stage 17 A Sample having shown positive for exogenous testosterone, which was confirmed by Ms. Frelat in the Stage 17 B Sample now. And now we have two more of Mr. Landis' B Samples having also shown the presence of exogenous testosterone.

Now, let's go to the next one, Exhibit 87.

MR. BRUNET: Mr. Dunn, we will take a 15-minute recess at this time.

MR. DUNN: Sure.

(Brief recess taken from 4:13 to 4:38 p.m.)

MR. BRUNET: Let's resume. Today, exceptionally, we'll finish the hearing day at 6 p.m.

MR. DUNN: May I proceed?

MR. BRUNET: Please proceed.

MR. DUNN: Thank you.

Q. (By Mr. Dunn) Ms Mongongu, you were talking about the analyses you conducted in

April of 2007 of Mr. Landis' other B Samples?

At the time you were performing the analysis along with Ms. Frelat, did you know which sample was Mr. Landis' or which was the sample that Dr. Aguilera had brought with him?

A. No, I worked completely blindly.

Q. Do you know how many samples Dr. Aguilera had brought with him?

A. Yes.

Q. How many?

A. Three.

Q. So during the week of April 16 through 23, you had ten samples that you and Ms. Frelat were analyzing?

A. That's exact, yes.

Q. And out of those ten, how many did you analyze?

A. I analyzed six of them.

Q. And are you sure you did not know which of those six were samples collected from Mr. Landis during stages other than Stage 17?

A. No, I didn't know at all.

Q. No one told you?

A. No.

Q. When did you find out that the

samples you analyzed that turned out to have exogenous testosterone were collected from Mr. Landis?

A. I learned that that weekend.

Q. The weekend after the reports were reported -- after the results were reported?

MR. YOUNG: This weekend?

A. This weekend.

Q. Oh, this weekend is the first time you learned --

A. Which the samples were -- who the samples belonged to.

Q. And that's just two or three days ago?

A. Yes. Yes.

Q. Going back to a couple of things we'd touched on earlier, we talked about the uncertainty range for the delta/delta values of .8. Do you remember this?

A. Yes.

Q. Now, how is .8 determined to be the uncertainty factor you used?

A. Well, we performed an evaluation of the methodology, the method.

Q. Was that done in a study that LNDD

performed?

A. Yes.

Q. Did you participate in that study?

A. Yes.

Q. Over what time frame was it conducted?

A. Over a very long period of time.

Q. Okay. Could you pull up LNDD 0451?

MR. YOUNG: Exhibit 26.

MR. DUNN: Exhibit 26.

Q. Is the Exhibit -- what number is it -- 26?

THE WITNESS: 26.

Q. Does Exhibit 26 contain the study that generated the .8 uncertainty factor for the delta/delta values?

MR. SUH: What page of Exhibit 26?

MR. DUNN: I haven't asked her that yet. I just asked her if the exhibit contained the study.

A. (By Interpreter) Yes.

Q. It does.

A. Yes.

Q. And is there a page within that exhibit that sets forth the basis for the .8?

A. LNDD 0456.

Q. Does that study also set forth the basis of the 0.5 uncertainty factor you used with the single delta value?

THE WITNESS: No.

Q. No?

A. (By Interpreter) No.

Q. At a different page in that same exhibit?

A. Yes.

Q. I'm sorry. I mean, I didn't mean to refer you to that page.

Okay. What page does the .5 uncertainty factor appear?

Okay. Just one page. Give me an example of where it appears.

A. LNDD 0459.

Q. That's one page. There are others?

A. 034 --

Q. You don't need to identify them; I

just wondered if there are.

A. Oh, yes. Yes.

Q. Okay. You can put that aside now. Thank you.

A couple questions regarding chain

of custody for the A Sample, specifically the aliquots of the A Sample that you have.

Could you turn to the B document package, Exhibit 25.

Okay. Now, I know that you weren't involved in the analysis of these samples --

THE INTERPRETER: I know that you were involved?

Q. Were not.

THE INTERPRETER: Were not.

Q. -- other than to verify what Ms. Frelat did, but I would like you to turn to the B Sample documentation package and specifically to Pages 253 to 257.

A. Yes.

Q. Now, just describe for me generally what these pages represent.

A. The chain of possession, the chain of custody of the IV tubes. Flasks.

Q. I'm sorry. Could you say that again?

A. The chain of custody --

Q. Of?

A. -- of the IV --

Q. No. Of the A and B bottles.

THE INTERPRETER: Oh, the A and B bottles.

Q. Right?

THE INTERPRETER: Right. Sorry, Counselor. Thank you.

Q. And the first two pages, 253 and 254, of the internal chain of custody for the A and B bottles, correct?

A. That's correct, yes.

Q. And the next three pages, which are Pages 255 through 257, that's the internal chain of custody for the aliquots of the A and B bottles, correct?

A. Yes, the aliquots A and B.

Q. And what's your operator number?

A. 49.

Q. Okay. Now, go to Page 253, please. And in the column that says Code Operator, do you see that? About halfway down, you see the number 49. That's you, correct?

A. Exactly, yes.

Q. And what does this reflect you were doing with the sample bottle A?

THE INTERPRETER: Reflect what you were doing with that sample bottle?

Q. Yes. What does this reflect you were doing with the A Sample bottle?

A. It shows the bottle --

THE INTERPRETER: Insertion in the bottle is what basically is the literal translation -- what is it?

Q. It's okay.

Are you making an aliquot from the A bottle for the IRMS analysis?

A. Yes.

Q. Okay. Now, what time of day did you make that aliquot from the A bottle?

A. I performed the aliquots on the 22nd -- the 22nd of July of 2006 at 11:20 in the morning.

Q. Okay. And is that the time and date that you first had possession of the A bottle?

A. Yes.

Q. And now, if you would go to Page 255 -- actually, Page 256.

Now, you had possession of the A bottle on July 22 at 11:20 in the morning, and you made an aliquot for an IRMS analysis.

Now, go to Page 256. And do you see your number there, about the fourth entry down?

A. Yes.

Q. And what day and time is that?

A. It's the 22nd of July 2006 at 11:20.

Q. The same time as you made the aliquot from the A bottle.

A. Yes.

Q. So, you made the aliquot from the A bottle, and then you took that aliquot down to the sample preparation room?

A. Yes, that's right.

Q. Okay. Did anybody else have possession of the sample aliquot between the time you made it until the time you took it to the sample preparation room?

A. No, I was the only one who was in possession of the aliquots.

Q. Okay. And that is true of the aliquots from the time you brought them to -- until you had completed the fractionization of the aliquots on July 23 at 3:25 p.m. Is that correct?

A. I'm not sure I understood the question.

Q. Let me ask it this way: Between the time that you brought the aliquot down to the

sample preparation room and the time that you completed the IRMS analysis, did anyone else besides Cynthia Mongongu have possession and control of the A Sample aliquot used for IRMS?

A. No. No, no one else.

Q. Well, now is the sample preparation room behind three sets of locked doors?

A. Yes.

Q. You left an aliquot of the A Sample on the solid phase extraction machine in this sample preparation room overnight?

THE INTERPRETER: Can you repeat that last bit?

Q. Let me just ask it this way: During the time that you left any part of the A sample aliquot in the sample preparation room, did any outsider have access to the sample preparation room?

A. Well, the people who have access to the sample preparation room are my colleagues at work.

Q. I'm sorry. Did any outsider --

THE WITNESS: Outsider, no.

A. (By Interpreter) No.

Q. And to your knowledge, did anyone

other than Cynthia Mongongu handle the A Sample aliquots during the time of the IRMS analysis?

A. (By Interpreter) No.

Q. Switching to the B Sample which Ms. Frelat analyzed, do you know whether the same situation is true with respect to the matter in which she handled and had possession of the B

Sample aliquot for IRMS?

A. Yes.

MR. JACOBS: I'd just like to object that it calls for speculation as to what the other operator did.

MR. DUNN: May I respond? She was the verifier.

MR. BRUNET: You can ask the question to the witness when you call her.

MR. DUNN: Okay. Great. I will. Thanks.

Q. Okay. Let us move on to another subject.

We were talking before the break about the analysis of Mr. Landis' samples from stages of the Tour de France other than Stage 17. And we had established that two of those showed the presence of exogenous testosterone.

And now, I want to talk to you about the other two.

Could you pull up Exhibit 107. And could you blow it up. Let's see, I think we've established --

James, if you could highlight the row that has the blind sample Number 825424.

Now, that's the first sample that you have testified today showed the presence of exogenous testosterone, and that occurred --

that sample was collected on July 23, 2006, and that was Stage 20 of the Tour de France.

A. Yes.

Q. Okay. You understand? You now know that.

A. Yes.

Q. Now, if you go back to the second sample we talked about earlier this afternoon the row -- James, with the number 825428?

THE INTERPRETER: 825428?

Q. Yes.

And that was from July 18, 2006, which was the 15th stage of the Tour de France.

Now, there's -- we've already talked about the two that are in the dark box. Those

are from Stage 17. And they're the A and the B, which both were positive for endogenous testosterone.

Would you highlight those?

Now, let's go to the one, two, three, four -- this will be the fifth sample from Mr. Landis that showed the presence of endogenous testosterone. And I believe that that is -- hold on one second -- if you go to -- let's see, Exhibit 86. No, I'm sorry. Exhibit 87.

And Exhibit 87 is the document package from analysis of the blind Sample

825429.

If you could turn to Page 1012 of that exhibit.

And could you blow up that last table, James, please.

Now, does this table reflect a value that you determined to represent or show the presence of exogenous testosterone?

A. Yes.

Q. Okay. And would that be that value?

A. Absolutely, yes.

Q. And you applied the uncertainty

factor of .8 on either side.

THE INTERPRETER: I'm sorry. Of what?

Q. .8 on each side.

Now, James, if you could show the whole document.

Okay. And it was on that basis in the conclusion that you made your determination of the presence of synthetic testosterone, correct?

A. Yes.

Q. Could you go back to 107, please, and then highlight that line for me?

MR. PADILLA: Which number? I'm sorry.

MR. DUNN: What was the number? It

is 825429.

Q. Okay. So, now we have one, two, three, four, five. Is that right? And A and B is one. So let's go to the last one, which is if you could look at Exhibit 88.

And before you put up 88, go back to 107, please. Go ahead and get 88. Do you have it in front of you?

Just to complete the record and the trail here, that last stage was Stage 19 on July 22, 2006.

THE INTER PETER: 2006, Counsel?

Q. 2006.

Okay. So now, we have Stage 19, we have Stage 20, we have Stage 17, and we have Stage 11? No, 15. I'm sorry. So we have Stage 19, 20, 17 and 15.

Now, go to Exhibit 88, and that's Sample Number 993855. And go to Page 1106, and pull up that same table, if you would.

And is this the value upon which this sample was determined to contain synthetic testosterone?

A. Absolutely.

Q. And you made this determination?

A. Yes.

Q. Verified by Dr. Buisson?

A. Yes.

Q. And now can you go back to 107.

And highlight that last row, if you would. Yup, that's the one. Okay.

Now, based on your experience as a professional analytical chemist, all six of those values from those five stages of the Tour

de France reflect the presence of exogenous testosterone?

THE INTERPRETER: What kind of testosterone?

Q. Exogenous.

A. Yes.

Q. We can take that one off.

And now, if you could display the document that Mr. Suh was examining Dr. Brenna about this morning, GDC 01056.

Forgive me. I've got to get out my reading glasses for this. It's very small.

Okay.

MR. BRUNET: I'm sorry. Which exhibit is that? Do we have an exhibit number?

MR. YOUNG: This is --

MR. BARNETT: It's in the GDC book.

MR. YOUNG: Volume 4 of 4.

MR. DUNN: It's this log in.

MR. YOUNG: And it starts at -- Mr. Suh, do you have an exhibit set for the witness of your binder?

MR. WEISS: It was over on the table by the interpreter earlier, right below the table.

MR. BARNETT: Thank you.

MR. CAMPBELL: Mr. Suh, we need copies of that extra, that one page.

MR. SUH: I'm sorry. I don't think we did that. We'll make one right now.

MR. BRUNET: It's 1073.

Q. Okay. Now, Ms. Mongongu -- does this have an exhibit number or do we just call it by the GDC number?

MR. BARNETT: Just the GDC number.

Q. Okay. We're going to call this GDC exhibit beginning with Number 1056 and it goes through 1075. And why don't we just refer to this as the "log," okay?

And this is -- if you look at the log, the dates are beginning in April of 2007 so, to the best of your knowledge, these entries on this log don't represent anything to do with the Stage 17 analysis.

A. No.

Q. And as I think you testified earlier, the Stage 17 analysis was run using OS/2 Optima software, correct?

A. Yes, that's right.

Q. And then that was the summer of 2006

during the Tour de France. Now, I'll fast-forward to April of 2007 and the subject we just finished talking about, which was the analysis of 7 of Mr. Landis' Tour de France samples other than Stage 17.

THE INTERPRETER: Other than stage?

Q. 17.

And that analysis, or those analyses, were performed using MassLynx software, correct?

A. That's correct.

Q. Okay. Now, I believe Mr. Landis' counsel represented this log to have been produced by LNDD during the time that Dr. Botré was at LNDD lab observing the reprocessing of the electronic data files.

And Dr. Botré and representatives of Mr. Landis and USADA were present at LNDD over a two-week period, correct?

A. Yes.

Q. First to download the EDF files, electronic data files, and then a few days or a week later, they all came back to watch you reprocess electronic data files?

A. Yes, that's right.

Q. And you did that in their presence first using the OS/2 software?

A. Yes.

Q. And when you used it for the -- sorry. When you reprocessed using the OS/2 software, you did it in basically the same way you had analyzed the samples back in the summer of 2006. Correct?

A. Yes, that's correct.

Q. Now, was there ever a time during this reanalysis where you had attempted 20 times to perform a function but were unable to do so?

A. No.

Q. 15 times?

A. No, I certainly didn't do it 20 times. I've no such recollection.

Q. And there was no function that you performed 15 or 20 times during that reprocessing.

A. No.

Q. So what Mr. Suh stated in his opening statement was a mistake.

A. Yes.

Q. Okay. Now, just -- let's finish off with what you did generally with the

reprocessing.

As I understand it, you, using OS/2

software, you reran the files in basically the same way you'd done last summer?

A. Yes.

Q. And that included occasionally making a few manual refinements for background?

A. Yes, that's right.

Q. And for the start and stops of a few peaks?

A. Yes, I did verify -- I did verify the integration of peaks.

Q. Why don't you just tell me -- rather than me trying to ask questions, just tell me what you did first with the OS/2 software, in terms of what you did last summer and then what Dr. Davis wanted you to do, and then tell me just quickly what you did with these MassLynx software after that.

And just generally; we don't need any great detail.

A. When we reprocessed the results, I was asked to bring out data -- to do three reports on the data: one which dealt with the automatic reprocessing of the instrument, and

the second was the verification that I had originally performed, and the third was with the subtraction of the background noise, reduction of the background -- subtraction.

And then, after that, we -- and then

we inserted or placed the electronic data on the MassLynx software, or into the MassLynx software, and then I reprocessed or reperformed the -- reprocessed the results using that other software.

Q. Is that pretty much it?

A. Yes.

Q. Now, let's go back, now, to the April 2007 analysis of the other B Sample and the log that was discussed at length this morning.

Now, had you ever seen this log before this weekend?

THE INTERPRETER: This weekend?

Q. Well, when did you first see this log?

A. I saw it at the time of the reprogramming -- the reprocessing of the data.

Q. And before that, had you seen this document before?

A. No.

Q. Had you ever printed out something similar to this?

A. No.

Q. Now, you were using MassLynx at the time of the April 2007 analysis?

A. Yes, we use the MassLynx for that.

Q. Okay. Now, I just want you to tell

me, in response to some of the testimony this morning or the statements by Counsel, what you were doing at the time some of these entries appear to have been made.

And let me start, first, with the entry for April 17 at 11:48:08.

Now, can you blow that up -- oh, I can.

That says at 11:48 and 8 seconds that the IsoPrime method stopped. And that, at the end of it, it says wait till running?

THE INTERPRETER: I'm sorry. What did you say?

Q. Wait till running.

Actually, okay.

I think we can forget that one. I highlighted the wrong one. This is the one I

meant to. Sorry.

Where it says, Commencing analysis of 1704 MixCalIRMS01.

And then I want to go down about eight lines. No. I'm sorry. More than that. All the way down to the second-to-the-last entry which says --

MR. BRUNET: Would you refer to the time, Mr. Dunn. It would be easier.

Q. I mean, 12:17:43.

Do you see that?

Okay. Sorry about that. Now we have it.

Okay. Now, that seems to me to indicate that the same basic function was being performed at 11:49 and then again at 12:17.

Can you explain what you were doing at this time and why those two entries appear on the log, if you know?

A. Okay. If I look here at the 17th of April 2007 at 11:48 in the morning, there was no acquisition of the mix cal IRMS because the IsoPrime, that is the instrument, had stopped.

Q. So was any data reported along with that?

A. No, it was no data reported.

Q. And then what happened when you go down to 11:49?

A. Then, at 11:49, I injected a mix cal IRMS; and then at 12:16 p.m., I injected a second; and that was to charge the insert of the instrument, which had just been charged.

THE WITNESS: Liner.

A. (By Interpreter) The liner of the instrument. Thank you.

Q. That's the one you just mentioned?

A. Yes.

Q. Okay. And then -- okay. Let's look at the line for 11:49:43. And that's this one right here. Do you see that?

And that is a MixCalIRMS01, and then you go all the way down to the second-to-the-last at 12:17:43, and that's also an analysis of MixCalIRMS01.

Now, can you explain why there are two with the same number?

A. Well, as I said before, I charged the --

THE WITNESS: Liner.

A. (By Interpreter) -- the liner. I

injected the solution, and then I did the injection in order to have the verification, to perform the verification, which corresponds, in fact, to the first mix cal IRMS at 1217.

Q. Well, help me understand this a little bit more. The first one that's at 11:49:43, you're commencing the analysis. Are you just priming the machine at this point?

A. Yes.

Q. Were you ever intending to collect data from that injection for purposes of your analysis?

A. Oh, no, absolutely not.

Q. If you go down to the second-to-last entry, that entry for commencing analysis of 1704MixCalIRMS01, is that the run that you intended to collect data from?

A. Yes.

Q. So you weren't erasing any previously obtained data that was intended to be used for the analysis.

A. No.

Q. You had simply run an injection to prime the machine to later verify that it was operating properly.

A. Yes.

Q. Let's take a look at another sheet Mr. Suh brought up today. And at this -- this is page GDC 1057. And I'm going to have to go back and forth.

What I want to point out to you here is the line that begins at 12:33:21.

I'm going to highlight it here, and I'm sorry that this obscures a little bit when I do that, but we'll make the best of it.

Okay. And that --

Let me zoom in, maybe make it a little bit better. Actually, you can probably highlight these when I do it, can't you? Why don't you do that?

MR. PADILLA: I got it up already.

Q. You got that one. This is the line that begins with 12:33.21, the one that's about seven from the top. The one that has 12:33.21 that says, Commencing analysis.

Okay. Now, you can see that? You got that? That's at 12:33:21, and it's for MixCalIRMS02.

Okay. Now, go back to the previous page, please, James, and go to the line that is

at 12:06 even. Is there a way you can display both of these simultaneously?

MR. PADILLA: Yeah.

Q. Could we blow them both up, so we can read them?

And then all I want to try to have you explain is, if you compare on the -- where is it, I'll just have to come up here. Is -- do you have the laser? Thanks.

Well, sorry about this delay.

MR. PADILLA: Side by side, it won't blow up all the way.

Q. Okay. If you look at this value here, this line here, see that? That says, Commencing analysis of the 1704MixCalIRMS02, okay? At 12:06.

Now, go to the next page. And there's another Commencing analysis of 1704MixCalIRMS02 at 12:33.

Is this the same explanation as you had for the first one?

A. Yes. I did the two injections, and then I relaunched it, or restarted it.

Q. So the first time you did the commencing analysis on the previous page was

simply a prime of the machine?

A. Yes.

Q. Never intended to generate data that was going to be used in the analysis?

A. No.

Q. Okay. A couple more. And these are just examples. I'm sure there's many others.

Now, go to Page 1058. Here is 1058. Actually, just bring it up.

Okay. Now, I'd like you to look at the line for 7:52 and 43 seconds.

THE INTERPRETER: I'm sorry. Counsel, can you repeat that?

Q. The line that is for 19:52:43, and this is 7:52 in the evening on April 17th, 2007.

Are you there, Cindy?

A. Yes.

Q. Now, that says, Commencing analysis of 1704Blu1F2. Now, that's the Fraction 2 from the blank urine, correct?

A. Yes, exactly.

Q. Now go down six lines or so to where it says 20:24:29, and there it says --

You can highlight that, if it's not already.

-- it says, Commencing analysis of this same material, correct?

So what's the explanation of this?

A. At 19 hours and 52, it says it's commencing analysis of 1704BLu1F2. Well, the analysis did not have a complete process because there was no injection. That is, if we go back into some of the -- if we go back to the sequence of the injections, during the sequence of the injections, I have to add the ISO, the liquid nitrogen in a cold trap, so that the remainder, or the rest of the injections, may be done, may take place.

So at that time, I make a pause -- I pause on the level of the sequences being done, because I have to wait until the last injection is finished, and then I fill up my -- and then I fill up my cold trap of liquid nitrogen.

And so I have to leave the cold trap; I have to make sure that it becomes stable for a few moments. And then when I stop the pause, then it goes to the sample that will then be injected following that. At this point, in this particular case, the specific case, the sample BLu1F2 of 1704, and that's why, when you

open -- when you start the 1704, that is to say, the software itself will open. The software itself will open the 1704BLu1F2 which -- that's it.

Q. Let me try to restate what I think I heard, and then try to correct me.

It sounds like between these two commencing analyses of this blank urine Fraction 2, the nitrogen gas on the machine needed to be refilled --

A. Yes.

Q. -- so you had to stop that run and put in more nitrogen gas --

A. Yes.

Q. And then rerun it?

A. Until -- yes, waiting until it was stabilized. And then -- and then continue on with the rest of the sequence.

Q. Was there any data lost that was important or relevant to the analysis?

A. No.

Q. Let's go through one or two more. Let's see, now, if you would turn to Page 1066, please.

And James, if you could go down to

the line for 11:26:19, if you could highlight that.

Commencing analysis of 2004 mix cal acetate 01, and then go down, when you're finished with that, about seven lines to 12:22:45, where it has the same description. And then -- well, you tell me, Ms. Mongongu. Is there another line in this that we should highlight for you to explain why there are two entries that have the same words associated with them at different times? Or do we just need to compare those two, and you can tell us the explanation.

Why are there two identical narrative entries here; do you know?

A. Because the mix -- because there must have been an inversion on the level of the vial standards.

When I performed my -- the three mix cal IRMS, and then I add another line to do my mix cal acetate, and if I forget to increase the bottle, and then all of a sudden it injects not the acetate, but then it injects the mix cal IRMSs, then the mix cal acetates do not correspond. Then they don't correspond to the

mix cal acetates, because what was injected -- what was injected was the alkanes.

Q. Alkanes.

Excuse me for interrupting.

A. So when I realized that's happened, then I once again launch, or I start, the right bottle.

Q. Great. All right. So now I'm going to summarize briefly. What you did was, there was a bottle that got mixed up, a little vial. You saw that the data that was generated was incorrect. Correct?

A. Yes, that's right.

Q. And then you fixed the problem, and you reran it, and you generated data that could be used in the analysis.

A. That's right. That's correct.

Q. Now, there are other changes -- not changes. There are other explanations, but we don't have enough time, but I just want to be clear about one thing.

Did any of these cause you to conclude that the samples -- well, strike that question.

Okay. You didn't mix up the

bottles; you just copied the wrong line of text when you were --

A. Yes, I didn't increase increments.

Q. So you pasted and copied a line of text.

A. On the level of the instrument, I finished a copy, and then on the level of the bottle, it stated the same as on the alkane.

Q. So it was just a simple mistake in copying texts from one place and pasting it into the sequence for this analysis?

A. Yes, that's it.

Q. So you corrected that?

A. (Nod of head.)

Q. And the result --

THE INTERPRETER: Wait a moment. I need an answer.

MR. DUNN: I'm sorry. Thank you.

A. Yes.

Q. That's fine. You can put that exhibit aside; we're all done with that.

MR. DUNN: And if I may have one minute to confer with my colleagues.

MR. BRUNET: Sure.

MR. DUNN: No further questions at

this point. Thank you, Ms. Mongongu.

A. Merci.

MR. BRUNET: Thank you, Mr. Dunn.

And I think since it's 10 to 6:00. I think it would be best to adjourn today.

Before we did, Mrs. Interpreter, I would like for you to translate what I will tell you in French --

THE INTERPRETER: Yes.

MR. BRUNET: -- in English.

THE INTERPRETER: I thank you very much for having appeared before us in the last moment here, and as far as I'm concerned, I give you an A plus.

(Applause.)

THE INTERPRETER: I appreciate any help I can get.

MR. BRUNET: And we hope to see you again tomorrow.

MR. SUH: Mr. Chair, perhaps we could ask the interpreter if she had some time to maybe read the briefs just like our previous interpreter had. It might help with some technical terms, and it might go a little bit quicker.

MR. BRUNET: I'd assume the parties would organize that.

THE INTERPRETER: Something fairly brief, hopefully.

MR. SUH: We have briefs, but they're not brief.

MR. BRUNET: Oxymoron.

MR. BARNETT: For the record, Mr. Chair, we took the briefs back from the other interpreter and provided them to this interpreter, quite happily.

MR. BRUNET: Just one final comment, would you provide us a list of witnesses that you anticipate to call tomorrow morning? Obviously, Ms. Mongongu will be testifying tomorrow morning, but then do you have any other witnesses, or should we rely on the list that you gave us?

MR. BARNETT: Let me update it, because today didn't go quite as any of us planned. And we will -- and honestly, we're adjusting given the time limits and the very helpful time update that was provided to us last night. So we'll go back and look at the time as well. So I do reserve the chance to redo this

order.

We expect to testify tomorrow, Claire Frelat, Dr. Christiane Ayotte, and then we expect the rest of the day will probably be taken up with LNDD personnel. I'm just not sure, given the area we've already covered, and what we need to cover, who it may be. But it may be Esther Cerpolini, Ruddy Barlagne, and we're not sure if we will get much beyond that.

MR. BRUNET: Thank you very much.

This hearing is adjourned until tomorrow morning at 9:30.

(Recessed at 5:50 p.m.)

BEFORE THE AMERICAN ARBITRATION ASSOCIATION

North American Court Of Arbitration For Sport Panel

TRANSCRIPT OF PROCEEDINGS, May 16, 2007

UNITED STATES ANTI-DOPING AGENCY,

Claimant,

vs.

FLOYD LANDIS,

Respondent.

PURSUANT TO NOTICE, the above arbitration hearing was held at Pepperdine University, Department of Law, Malibu, California, May 16, 2007, commencing at 9:35 a.m. before Debra K. Resling, RMR, Certified Realtime Reporter and Notary Public.

AMERICAN ARBITRATION ASSOCIATION PANEL

MR. PATRICE BRUNET, 1010 De la Gauchetiere West,
#2260, Montreal, Quebec H3B 2N2, Canada. E-Mail:
Pbrunet@brunetavocats.com.

MR. RICHARD H. MC LAREN, Innovative Dispute
Resolutions, Ltd., c/o McKenzie Lake Lawyers, LLP, 300
Dundas Street, London, Ontario N6B 1T6, Canada.
E-mail: Mclaren@mckenzielake.com.

MR. CHRISTOPHER L. CAMPBELL, Chapman & Intrieri, 2236
Mariner Square Drive, Suite 300, Alameda, CA 94501,
United States.
E-mail: Ccampbell@chapmanandintrieri.com.

APPEARANCES

MR. RICHARD R. YOUNG, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MR. DANIEL J. DUNN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 1700 Lincoln Street, Suite 4100, Denver, Colorado 80203-4541, (303)866-0365, appeared on behalf of the United States Anti-Doping Agency.

MR. MATTHEW S. BARNETT, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MS. JENNIFER SLOAN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MR. MAURICE M. SUH, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333 South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. DANIEL L. WEISS, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333 South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. HOWARD L. JACOBS, Attorney at Law, from the Law Offices of Howard L. Jacobs, 4210 Lewis Road, Suite 5, Agoura Hills, California 91301, (818)442-0408, appeared on behalf of Floyd Landis.

MR. PAUL SCOTT, Chief Operating Officer, 2160 Century Park East, #2108, (310)203-0354, Los Angeles, California 90067, Agency for Cycling Ethics.

Participants behind Counsel Table: Caroline Hatton, Kathrin Weston, James Padilla; Floyd Landis, Amber Landis, Mr. and Mrs. Paul Landis, William Geoghegan, Arnie Baker, Michael Henson, Brent Kay, Todd Thompson.

Panel Participants: Dr. Francesco Botré, Andreas Zagklis.

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(Commencing Wednesday, May 16, 2007 at 9:34 a.m.)

MR. BRUNET: Good morning, everyone.
So we'll resume the third day of the hearing in the USADA versus Floyd Landis arbitration.
Can I have appearances from the counsel, please?

MR. SUH: Good morning, Mr. Chair.
Maurice Suh from Gibson, Dunn and Crutcher, appearing on behalf of Floyd Landis, who's here in person. With me here at counsel table, Howard Jacobs, Danny Weiss and Paul Scott.

MR. BRUNET: Thank you.

MR. YOUNG: For USADA, Richard Young, Matt Barnett, Dan Dunn and Jenny Sloan.

MR. BRUNET: Thank you.
And before we proceed, I just want to bring the parties up to date with the time allotments that we had decided at the beginning, and I will do this every morning as well.
You received an e-mail attachment last night, I believe, or this morning. Each party started with 23 hours total of examination

and cross-examination time.
After the first day, the balance remaining for Landis was 20 hours .6, and for USADA, it was 20 hours .5. And at the end of yesterday, the balance for Landis was 19 hours

.6, and the balance for USADA was 16 hours .7. So we'll continue to monitor this on a daily basis.

Mr. Young or Mr. Barnett, I understand at the end of the day yesterday, that you were -- that you had finished direct examination of your witness. Is this still the case?

MR. YOUNG: That is still the case.

MR. BRUNET: Thank you.

MR. SUH: Mr. Chair, just one minor issue on the timing. Given the time count, at what point do you think the Panel might be thinking about whether or not we proceed on Saturday?

MR. BRUNET: We're still reviewing this within the Panel.

We know and we'll probably have a discussion with Counsel tomorrow about this, bearing in mind the various witnesses that are

still there to be heard. So we'll review the time.

So if you want to prepare this, perhaps tonight, then we can have a discussion about it tomorrow.

MR. SUH: Thank you.

MR. BRUNET: Ms. Mongongu, if you can come back to your chair.

And you are still under the same oath as yesterday.

MS. MONGONGU: Yes.

MR. BRUNET: Mr. Jacobs, please proceed.

MR. JACOBS: Mr. Chair, before I start asking questions, there's one request I had. Mrs. Frelat, who is the next witness as I understand, is to be called, much of the questions that we have of her and Ms. Mongongu cover the same areas, and because of concern about coordinated testimony, we would request just on this one occasion that Ms. Frelat be excluded from the room for this cross-examination.

MR. BRUNET: Do we have an objection from Counsel -- from USADA?

MR. YOUNG: May we discuss this?

That's fine.

MR. BRUNET: Do you have any suggestion where Mrs. Frelat could go, this hearing being public?

MR. JACOBS: My suggestion would be the USADA witness room, which would be a room that would be free of media coverage.

MR. BARNETT: Actually, our back room, we have no telecast.

MR. JACOBS: And since they're

calling her next, it's not like we're asking her to sit back there for a day or two.

MR. BRUNET: Okay. Ms. Frelat. Before you leave, do you need interpretation?

MS. FRELAT: She's going to make --

MS. WESTON: I'm going to translate.

MR. BRUNET: You are Ms. Frelat?

MS. FRELAT: Yeah.

MR. BRUNET: Do you need interpretation? I just want to say a comment to you now.

(Mr. Brunet speaking in French; then in English.)

MR. BRUNET: So you are to go into

the witness room and not to listen or to hear any of the testimony. Even if it comes to you inadvertently, you are to take all the measures not to hear or listen to the testimony that we will receive.

MS. FRELAT: Okay.

MR. BRUNET: Okay. Proceed, Mr. Jacobs.

(The examination of Ms. Mongongu continues through the Interpreter Ms. Palmer.)

EXAMINATION (cont'd.)

BY MR. JACOBS:

Q. Good morning.

Ms. Mongongu, the LNDD is the only

anti-doping laboratory that you've worked at, correct?

A. (By Interpreter) Yes.

Q. And you told us a little bit yesterday about some of the training that you received at LNDD? I wanted to cover that in some greater detail with you.

You said that you received training at LNDD from a supervisor when you started there; is that correct?

A. Well, it wasn't a supervisor; it was

an analyst.

Q. And what was the name of that analyst?

A. Yannick Richard.

Q. And when was that?

A. It was at the beginning when I started my internship in February of 2003.

Q. And how long did that training take?

A. Well, it lasted for the whole period of my internship, the training did.

Q. And how long was that internship?

A. I finished -- I finished in July of 2003.

Q. So from February of 2003 to July 2003?

A. Yes, that's right.

Q. You also said you received training

from a -- I believe it was Pasquel Parmentier?

A. Yes.

Q. Was Pasquel Parmentier from MicroMass?

A. Yes, it's now known as GV Instruments.

Q. When was that training?

A. Well, when I started to work as an

analyst in September of 2003 -- well, he would come whenever I needed his help.

Q. How many times did you ask for his help?

A. Several times.

Q. Over what period of time, what years?

A. Well, in fact, we have a contract with them, but it's over a long period of time, so I wouldn't be able to tell you more specifically.

Q. But if I understand what you're saying, if you had questions about how the IRMS machine worked, you could call Mr. Parmentier and ask him questions?

A. But he would still come to perform maintenance on the instruments; and so on the occasions when he would come for the instruments, I would also receive training.

Q. And can you give me an estimate as

to how many times you received training from this individual?

A. I'd say, in any case, it must have been at least about ten times or more.

Q. What subjects could you call

Mr. Parmentier about and ask him for assistance?

A. Well, when the instrument was not working correctly.

Q. When was that?

A. I couldn't really give you dates, but it was all during the period of my -- well, it's because we have a contract with them.

Q. I just want to make sure I understand. Was there times where you noticed that the instrument was not working and you called to advise MicroMass that it wasn't working?

A. The engineer, yes.

Q. How many times did that happen?

A. I couldn't tell you exactly how many times. I don't remember.

Q. That's fair. I don't need an exact number, but if you can tell me if it was three times, ten times, 8,000 times?

A. Let me think. I'd say it was about ten times, but over a period of several days.

Q. Do you remember the time period?

A. I'm not sure I understand.

Q. Well, you had about ten times that you called Mr. Parmentier and said that the

machine was not working correctly.

If I understand correctly, you're saying that happened over a period of several days. Did I understand that correctly?

A. Yes.

Q. And my question is if you can remember approximately when that occurred that you called over those several days?

A. No. Quite frankly, I couldn't tell you.

Q. Can you tell me what year?

A. Well, I know since I've been in the laboratory since 2003, they've come on a number of occasions.

Q. But -- that's fair. But what I'm interested in are the approximately ten times that you called and told Mr. Parmentier that the machine was not working.

A. You mean ten times that I called Mr. Parmentier?

Q. I thought that was your testimony. If it wasn't, please tell me.

A. Okay. Let me start again. Since September of 2003, we have a maintenance contract with the manufacturer. Now, he comes about once or twice a year for preventative maintenance, and moreover, he will also come if we are having any concerns about the instrument.

Q. I understand that. There's regular times that Mr. Parmentier comes out to do regular maintenance on the machine, but I thought what you said was that, in addition to that, there was approximately ten times that you called him specifically because you were having problems with the machine; is that correct?

A. Yes.

Q. Okay. And those ten times that you called, were those scattered over a number of years, or was it concentrated around a few days?

A. The ten times that I called him it was when I first started at LNDD. It was really more when I was becoming accustomed that I wanted to get more training so that I would understand the instrument.

As far as how many times I called him since I've been at the laboratory, I couldn't give you an exact number.

Q. Okay. Let me start over.

I'm only interested, right now, in instances where you call because you were having

problems with the machine, as opposed to times where you called because you had questions about how it worked. And I thought I understood your testimony was that there were approximately ten times that you called Mr. Parmentier because the machine was not working properly. Did I understand this correctly?

A. You know what? I think I've lost the line of thought. I'm not sure --

MR. BRUNET: Ms. Mongongu, the question is simple.

Has the machine been broken while you were being trained on it, and did you call the technician in those circumstances?

A. Yes.

Q. Okay. Thank you.

And if I understand, there were roughly ten times that you called because the machine was broken; is that right?

A. Yes, ten times or maybe more.

Q. Well, give me your best estimate as to how many times you called because the machine was broken.

A. I just can't seem to come up with a number. I'm not sure.

Q. I don't need to have an exact number. If you say it's 12 times, and it's actually 13, I'm not as interested in that as getting your best estimate. If it's ten times, or 20 times, or 50 times, just the best estimate you can give me.

A. It's a hard question, that. I just -- I can't seem to remember. I'm just not able to.

MR. MC LAREN: Why don't you narrow it down to this year, 2006 and 2005?

MR. JACOBS: Well, I'm actually interested in the entire time that she's there. If ten times is her best estimate, that's fine. I just need to establish that.

Q. Okay. So we'll go with ten as your best estimate. So there's ten times -- let me back up a little bit.

LNDD has two IRMS machines, right?

A. Yes.

Q. Of the approximately ten times that you called MicroMass because the IRMS machine was broken, did that cover both machines or just one machine?

A. It was for the first machine.

Q. That's the machine that the Sample 995474 was tested on, correct?

THE INTERPRETER: 995474.

Q. Yes.

THE INTERPRETER: 995474.

A. Yes.

Q. Do you remember what was wrong with

the machine on any of those occasions that you called?

A. The problems I had with the machine, well, there wasn't a good stabilization balance, and so when you have to clean the source, so it's not precise, it's not precise when lack of stability.

THE REPORTER: I'm sorry?

THE INTERPRETER: It's not precise when there is -- stability is lacking.

THE REPORTER: Thank you.

Q. Any other issues that you called MicroMass about when you were calling to say that the machine was broken?

A. As far as I remember, those are usually the reasons for which I would ask for help.

Q. Over what year or years did you call

MicroMass to advise them about this lack of stability with the older IRMS machine on which Sample 995474 was run?

A. Could you repeat the question?

Q. Sure. Over what year or years did you call MicroMass to advise them about this stability problem with the older IRMS machine which is the same machine that Sample 995474 was run on?

A. Over what period of years?

Q. Yes. Was it only in 2003? Was it over a number of years including 2006?

A. Including 2006?

Q. Let me ask you differently.

You had approximately ten times where you called MicroMass because of the stability problem with the machine, right?

A. Or either problems with stabilization or some source that needed to be cleaned.

Q. Approximately, when was the first time that you called MicroMass to complain about these problems?

A. The first time that I called MicroMass was when I arrived -- in 2003 -- I

think it was around in September of 2003. Yeah, it's about the end of 2003.

Q. Okay. And approximately when was the last time that you called MicroMass or GV, if it was GV, to complain to them about these problems that you were having with the machine?

A. As far as I remember, GV Instruments became involved at the end of 2005 for preventive maintenance, what I remember.

Q. But my question is, when is the last time that you complained about these problems that you were having with the older IRMS machine?

A. I wouldn't be able to tell you that.

Q. Was it in 2006?

A. I can't answer the question, because I simply just don't remember.

Q. You can't narrow it even to the year?

A. Frankly, no.

Q. Okay. Now, we know you received some training from LNDD and some training from MicroMass. Have you received any anti-doping training from the World Anti-Doping Agency?

A. In other words, training by the

World Anti-Doping Agency?

Q. Yes.

A. You mean on the level of the instrument?

Q. Yes.

A. No.

Q. Have you received any training at all from the World Anti-Doping Agency?

A. The LNDD?

Q. Have you personally received any training from the World Anti-Doping Agency?

A. No.

(Mr. Brunet interpreted.)

Q. Have you personally received any training from USADA other than in relation to this case?

A. No.

Q. Have you personally received any training from any other WADA-accredited laboratories?

A. No.

Q. Okay. I want to cover some of the specific areas that you have received training on.

Have you received any training on

how to perform manual integration of peaks in the IRMS analysis?

A. Have I personally received?

Q. Yes.

A. Yes, from the analyst who was there who was training me.

Q. Can you describe the training that you received on this manual integration process?

A. Yes. Is to verify that the background noise is correctly placed or set by the software. And then after that, one needs to verify the integration of the peaks in relationship to the traceability of the ratio 45, 44, and that's it.

Q. And how long did that training take, that you just described?

A. Well, it was all during my internship, my training. Well, and as long as the analyst who was there was there, he was training me, and who's -- and he's no longer there. It was over several months.

Q. Do you personally have any responsibility for instrument maintenance on the IRMS machine?

A. Yes.

Q. Do you receive any training on how to do the instrument maintenance?

A. Yes.

Q. Can you describe that training for us?

A. Well, I received the training from the analyst, the same one who was there, of course, and also from application engineers or engineers specializing in the application of the instrument, yes, or use of the instrument.

Q. And they told you what types of maintenance you need to do?

A. Yes.

Q. Did they tell you how often you have to do this maintenance?

A. Yes. When it was necessary to do it? Yes, they did.

Q. And did they show you how to do the maintenance?

A. Yes.

Q. Did you receive any specific training on the operation of the OS/2 Optima software?

A. Yes, they showed me how to use it.

Q. Who showed you?

A. Well, it was still Pasquel Parmentier.

Q. Did he provide you with a manual that showed you how to use it?

A. No, he showed me directly on the software.

Q. What did he show you?

A. Well, he showed me, first of all, what the options were, the options were that were available, how to do a peak center.

Q. Anything else he showed you specific to the OS/2 software?

A. Well, he showed me how the software ran the instrument; in other words, piloted, or ran, the instrument.

Q. And if I understand you correctly, he showed you that there are certain features that you can turn on or off, correct?

A. Well, yes, he showed me how to use it.

Q. During the training with Mr. Parmentier on the OS/2, did he discuss log files at all?

A. No.

MR. BRUNET: Log files.

(Mr. Brunet interpreting.)

Q. Do you know if it's even possible to print log files from the OS/2 software?

A. No.

Q. You don't know?

A. No.

Q. Did you receive separate training on how to use the MassLynx software?

A. Yes.

Q. Was that also from Mr. Parmentier?

A. Mr. Parmentier as well as Mr. Nguyen- something.

Q. When was that training?

A. When we received the second instrument, and if I remember correctly, that would have been probably in June of 2005.

Q. And during the training, did he show you the differences between the OS/2 software and the MassLynx software?

A. He simply showed me how to use MassLynx.

Q. When he was showing you how to use MassLynx, did he discuss the log file function with you at all?

A. No.

Q. Do you know if Mr. Parmentier actually installed the two IRMS machines at LNDD?

A. The first machine, I wouldn't be able to tell you, because I was not yet there. As far as the second machine was concerned, it was installed by -- first by Mr. Nguyen, and Mr. Parmentier was also present, however.

Q. Were you present when the second machine was actually installed?

A. Yes.

Q. You talked a bit yesterday about priming the machine. Did you receive any training on how or when to prime the machine?

A. Priming?

THE INTERPRETER: Counsel, could you explain priming just a little bit. I think I'm somewhat close.

MR. JACOBS: I was hoping she could explain priming. It was her testimony yesterday.

(Mr. Brunet interpreting.)

A. You mean how we prime, how we prepare the machine?

Q. Yes. Did you receive training on

how to prime the machine?

A. Yes.

Q. Who did you receive that training from?

A. Well, there was Mr. Nguyen, who was still there.

Q. When was that?

A. Well, when he finished installing the machine, then he showed me how to use it.

Q. Did you receive training at LNDD about specific chemistry issues, like how to do pipetting or things like that?

THE INTERPRETER: How to do what?

MR. JACOBS: Pipetting.

THE INTERPRETER: Pipette?

Q. Pipette.

A. Yes.

Q. You did receive training on how to pipette?

A. Well, I received training on how to prepare a sample, how to do a sample.

Q. During the training you received at LNDD, were you provided any of the WADA technical documents to review?

A. When what?

Q. When you were trained at LNDD as to how to do testing in the anti-doping world, were you provided with, for example, the WADA International Standard for Laboratories?

A. Yes. I was shown the various kinds

of techniques, preparations, that was used in the laboratory -- for the laboratory.

Q. If we can put USADA Exhibit 8, the WADA International Standard, up on the board.

Have you seen this document before?

A. Yes, I have seen it before.

Q. Did you review this document as part of your training at LNDD?

A. I did see it, yes.

MR. YOUNG: Mr. Jacobs, if you're going to ask her specific questions about it, I think we have a French copy.

MR. JACOBS: That would be great. Is it in the exhibits?

MR. YOUNG: Yeah.

MS. SLOAN: Exhibit 99.

MR. JACOBS: Exhibit 99.

Q. And you understood that the work you did at an anti-doping lab accredited by WADA had to comply with this International Standard,

correct?

A. Yes.

Q. If you can turn to -- in the English version, it would be Page 35 of the document, Section 5.4.4.4.1.4.

MR. BRUNET: Mr. Jacobs, if she has the copy in French, that should solve the issue.

Oh, you have it in French. Great.

Q. And you understood from this section that any changes in data have to be recorded with an audit trail, correct?

A. Which paragraph is that?

Q. It's 5.4.4.4.1.4?

A. I don't have it.

MR. BRUNET: Mr. Jacobs, the section on the screen only shows half of the text.

MR. JACOBS: I guess it continues onto the next page.

Q. Have you reviewed the section?

A. Yes.

Q. And you understood that this applied to all work that you did in an anti-doping case at LNDD, correct?

A. Yes.

Q. So you understood that if you made

any mistakes during the testing process that you would have to document that, correct?

A. I'm sorry. I'm not sure.

Q. Did you understand that from this document, that if you made a mistake during a testing process, that that mistake would have to be documented?

A. Yes.

Q. And did you understand that if you changed an entry in the documentation package, that change would have to be made in such a way that it could be tracked?

A. Yes.

Q. And did you also understand that if you started any process over, during the testing, that you would have to document that as well?

A. That's within the framework of the ratio, the ratios that were set.

MR. BRUNET: In establishing the report.

THE INTERPRETER: Or establishing -- I see. Sorry.

A. Establishing the actual report then.

Q. Well, my question was a little

different. Did you understand that if you started a process over during the testing that you had to document it?

MR. YOUNG: And let me object just to make sure that we're clear. Are we talking about any process?

MR. BRUNET: I'm not sure Mr. Jacobs is hearing you, Mr. Young.

MR. YOUNG: I'm sorry.

MR. JACOBS: I'm sorry. What was the objection?

MR. YOUNG: I think -- I think it would be fair to the witness to clarify whether he's talking about any process or what he's talking about starting over.

Q. Well, let me ask it differently.

Did you have an understanding as to what types of things had to be documented during the testing process? If you started over on an injection or started an entire process over, what was your understanding in that regard?

A. Each time that I would start something again?

Q. Yes. I want your understanding as to this requirement for what that types of

things had to be documented.

A. Well, what I understand from this paragraph is that any modifications -- let's say, if we do -- if I make a modification or what makes a modification on any entry within the relationship of the -- of establishing the report, then it must be traced -- traceable. That's what I understand that paragraph to mean.

Q. Okay. Did you receive any training at LNDD about steps that had to be taken to preserve evidence that might be used in an anti-doping case?

THE INTERPRETER: Could you repeat it?

Q. Sure.

THE INTERPRETER: She forgot the beginning.

Q. During your training, did you receive any training as to what steps had to be taken to preserve evidence for use in an anti-doping proceeding?

A. I would say yes.

Q. And what was your training in that regard?

A. Well, it would be on the level of

quality management.

Q. Let me ask it differently.

You understand that the work you do is testing athletes' urine samples for prohibited substances, right?

A. Yes.

Q. And you understand that if there is a positive test, that the athlete has the right to contest that, correct?

A. Yes.

Q. And you understand that if the athlete contests the positive, that the athlete needs to have the ability to look at the documentation of what you actually did, correct?

A. Yes.

Q. So I assume you also understand that you can't destroy evidence along the way, right?

A. Yes.

Q. And you were involved -- let's go to the Sample 995474.

THE INTERPRETER: Counsel, I missed something here. Can you repeat that?

Q. I want to move on to a different topic.

Let's talk about Sample 995474.

A. Okay.

Q. You were involved in performing the IRMS analysis on the A Sample for that, right?

A. On the analysis of the A Sample.

Q. Right.

A. Yes.

Q. And you also acted as the verifying scientist on the B Sample?

THE INTERPRETER: On which sample?

Q. The B Sample.

A. Yes.

Q. I think you said yesterday that, as the verifying scientist, you ensured that the operator who actually performed the B test followed the SOP in running that test.

A. Yes.

Q. Now, to verify that the scientist who actually performed the B test complied with the SOP, did you watch her perform every step?

A. If I was present, yes.

Q. And you watched this analyst perform every step?

A. In the entry -- well, there's an

entry log where you enter everything that you're doing as you do it.

Q. So you verified it by looking at the documents.

A. Yes.

Q. Not by standing over her shoulder and watching what she did.

A. Yes.

Q. If we can turn to Exhibit 25.

MR. BRUNET: I'm sorry. I didn't understand what that yes referred to; that she was present or that she --

A. No, I looked at the file. I looked at the entries.

Q. So you did not watch her actually perform the B; you verified it by looking at the document, right?

A. Yes.

Q. Let's turn to Exhibit 25, at USADA 253.

This is a chain-of-custody document for the bottles of the sample, correct?

A. I'm trying to find it.

Q. Okay. Can I help you?

This is the chain of custody for the bottle, correct?

A. Yes.

Q. And the entry for Operator 49, that is you, correct?

A. Yes.

Q. Now, this chain of custody is meant to show where the sample bottle is at all times, right?

A. And who has control of it.

Q. So it's to show where the bottle is and who has control?

A. Yes.

Q. And your entry is shown on July 22 at 11:20 a.m., correct?

A. Yes.

Q. And it shows that you had the bottle in Room 104 for the confirmation IRMS, correct?

A. Yes.

Q. Where did you get the bottle from?

A. From the preparation room; from the confirmation room with respect to the TCR ratio.

Q. T/E ratio?

THE INTERPRETER: T/E ratio. Sorry.

Q. Is that Room 103?

A. From what I can see there, yes.

Q. And what time did you get the bottle from that room?

A. Well, as the chain of custody shows,

I did my aliquots at 11:20.

Q. My question is what time you actually obtained possession of the bottle.

A. When I did my aliquot.

Q. So you obtained possession at 11:20?

A. Yes.

Q. Who did you obtain it from?

A. It was in the preparation room. It's in the ratio sample room.

Q. In the T/E ratio room.

A. T/E ratio room.

Q. Where in the room was it?

A. Where in the room? Well, it was in the -- on the rack.

THE INTERPRETER: On the rack?

DR. BOTRÉ: On the rack.

THE INTERPRETER: Yes, on the rack.

Q. Is that documented anywhere in the document package?

A. No.

Q. Do you have an independent memory of taking possession of the bottle from the rack in the T/E confirmation room?

A. Well, I had -- I had to take the

bottle to perform the aliquot.

Q. But my question is how you know that you took it from the rack, since that's not documented here anywhere.

A. Well, because that's where I took it from.

Q. But how do you know that? You just remember?

A. Well, yes, I can see myself picking up the bottle to go do the T/E ratio test.

Q. But it's not documented, correct?

A. No.

Q. So there's no documentation showing that you got the bottle from the rack in Room 103; is that right?

A. No.

Q. I'm sorry. I asked that poorly. Because that could be interpreted two ways.

Is it true that there is no documentation showing that you received this bottle from the rack in Room 103 at 11:20 a.m. on July 22?

A. Well, that document there shows that I picked up the sample -- that I picked up my sample to perform the analysis at 11:20.

Q. And it shows you picked it up at 11:20, but it doesn't show where you picked it up from, correct?

A. No.

MR. JACOBS: It was my fault again.

MR. CAMPBELL: Yeah, I'm not clear on that.

Q. Is it true that the document does not show where you picked the bottle up from?

A. Where from? No.

MR. BARNETT: And by that, you mean where specifically in the room?

MR. JACOBS: Yes.

A. No.

Q. How long did you have the bottle?

A. Well, just the time to do the aliquot.

Q. And how long did that take?

A. Well, it takes between two and five minutes. Let's say five minutes.

Q. So you had the bottle for five minutes?

A. Yes.

Q. What did you do with the bottle when you were done with it after having it for five

minutes?

A. After that, it was Number 18 who took possession of the sample.

Q. Is it your testimony that Operator 18 took possession of the sample at 11:25 a.m. on July 22?

A. Well, it's -- what's written there is that Number 18 took that sample over to -- for storage -- to store it.

Q. But you said you had the bottle for

five minutes, right?

A. Yes.

Q. So that would be until 11:25, correct?

A. Yes.

Q. And then the next entry is that Operator 18 has the bottle at 12:45, correct?

A. He stores it at 12:45.

Q. Is there any documentation of when Operator 18 took the bottle from you?

A. No.

Q. But your memory is that Operator 18 took the bottle at approximately 11:25 a.m. on July 22?

MR. BARNETT: I'm just going to

object that that's an attempt to mischaracterize her testimony.

MR. JACOBS: That's what she said. If I'm wrong, she can correct me.

MR. BRUNET: Mr. Jacobs' -- Mr. Jacobs' previous question related to the -- what the documentation said. Now, he's asking her to recall from memory.

MR. BARNETT: And my only suggestion, Mr. Chair, is that the term "had the bottle," is a very American term, and I think we need to be precise when we're translating.

MR. JACOBS: I'm sure he can clear

it up.

MR. BRUNET: Could you repeat the question, Mr. Jacobs, and I'll clarify whether the translation is done correctly.

Q. (By Mr. Jacobs) Let me make sure I have your testimony.

You got the bottle at 11:20. You had it for five minutes?

A. Yes.

Q. Yes?

A. Yes.

Q. And then Operator 18 took it, right?

A. Well, to store it, what's written is at 12:45.

Q. That's my question. You said you had the bottle for five minutes.

A. Yes.

Q. Where was the bottle between 11:25 and 12:45?

A. In the confirmation chamber -- I think that's the T/E -- the T/E ratio chambers.

MR. BARNETT: No, you can't guess.

A. It's the confirmation room.

MR. BRUNET: Let's just stick with the translation here.

MR. BARNETT: At this point, could we have the question asked again and the answer, just to clarify the record?

MR. JACOBS: Just read it back, please.

(Reporter complies.)

A. My answer is, I did the IRMS aliquot testing. Okay? And then I gave the bottle -- I placed the bottle then --

THE INTERPRETER: I'm sorry. I thought the witness was saying I gave it to somebody. She said -- she replaced the bottle.

A. (By Interpreter) I gave the bottle back to Esther.

Q. (By Mr. Jacobs) That's Operator 18?

A. Yes.

Q. And you did that at 11:25?

A. As soon as I finished the aliquot.

Q. At 11:25.

A. Yes.

Q. Do you have some specific recollection of this?

A. Yes, I remember doing the aliquot sample testing, and I remember having -- I remember giving her the bottle so that she could then perform the density test and the pH test.

Q. You were also involved in this case in reprocessing electronic data files related to this Sample 995474, correct?

A. Yes.

Q. And that was just within the last

few weeks?

A. Yes.

Q. And during -- and you did part of the reprocessing, and someone else did the other part, right?

A. Yes.

Q. You did the reprocessing of the A?

A. Yes.

Q. And at one point during that reprocessing, you called one of your fellow employees over to help you, correct?

A. To help me with what?

Q. To help you with the reprocessing.

A. Of my A Sample?

Q. Yes.

A. In other words, the reprocessing that I did on that sample, you're saying did I ask somebody else for help?

Q. Yes. That's what I'm asking.

A. Well, I don't know what kind of assistance you're asking me about. Do you know what kind of aid or help you're referring to?

Q. Did you -- well, did you ask anybody for any assistance during the EDF reprocessing?

THE REPORTER: During the what reprocessing?

Q. Reprocessing.

A. To reprocess my results?

Q. Yes.

A. Not to reprocess my results, no.

Q. Okay.

MR. BRUNET: Mr. Jacobs, unless you're in the middle of something, I'd like to call a 15-minute recess.

MR. JACOBS: That's fine.

(Brief recess taken from 10:40 a.m. to 11:05 a.m.)

MR. BRUNET: Welcome back.

Mr. Jacobs, let's resume.

EXAMINATION (cont'd.)

BY MR. JACOBS:

Q. Thank you. Ms. Mongongu, during the break that we just took, did you talk to anybody about the chain-of-custody issues that we've just been discussing?

A. No.

Q. What is it specifically that makes you remember this test from last July of 2006?

A. When I see the document, I know that the aliquot was done at 11:20.

Q. But what I'm asking is, is your testimony about how long you had the bottle based on what you would always do after looking at the document, or is it based on something that you specifically remember about this sample?

A. I remember having performed the aliquot, and then I remember having returned the bottle.

Q. How many aliquots do you do per year?

A. Per year?

Q. Yes. Per year.

A. Since I've been in the laboratory, I think I participated in about 400 IRMSs.

Q. And from those 400, do you specifically remember this one?

A. You're asking me if I remember exactly what I did with that particular one?

Q. Yes.

A. Yes. I remember doing the aliquot, performing the aliquot, and giving the bottle to Esther for her to -- so that she could continue her process or her procedure.

Q. And you have a picture in your memory of doing this and remembering what time it was as you did it.

A. I don't remember the hour. I mean, I see from here it's 11:20.

Q. So you don't have a specific picture in your memory of doing this, do you?

MR. DUNN: I have to object. It mischaracterizes her testimony.

MR. JACOBS: It's a question. I'm not characterizing anything. I'm asking a question.

MR. BRUNET: Ms. Mongongu, some of the questions that are asked of you are quite precise. The question that was asked of you two minutes ago, very precisely, was how many aliquots you were performing each year. And your response was 400 since you were at the lab.

We'll go through this day a lot faster if, perhaps, you took a few seconds in understanding the precise question and to answer it in the way that it is asked of you.

Do you understand this?

THE WITNESS: Yes.

MR. BRUNET: Thank you. Mr. Jacobs.

MR. JACOBS: Can you just read back the last question, please?

(Reporter complies.)

A. Yes, I do have an image of having done that.

Q. (By Mr. Jacobs) This was done on July 22, 2006, right?

A. Yes.

Q. What's the date of the next IRMS

confirmation you performed after this one?

A. The date of the next? Oh, I don't know.

Q. You also did some -- before I move on, I had asked you a question about the next IRMS confirmation analysis that you did after this one.

You said you don't remember the date, right?

A. No.

Q. Do you remember what time you did the aliquoting on that next IRMS confirmation?

A. No, I don't remember the time or the hour.

Q. You were also involved in doing IRMS analysis on a number of other samples in connection with this case, right?

A. Yes.

Q. Those are the tests done in April that you talked about yesterday, right?

A. Yes.

Q. And you submitted a declaration in this case related to that testing, right?

Exhibit 74?

A. Yes.

Q. If we can get to that, it's Exhibit 74.

Take a minute to look through it,

please, the declaration in front of you.

MR. BARNETT: Mr. Jacobs, if we could just have a minute to locate it.

MR. JACOBS: Oh, sure.

MR. BRUNET: Mr. Jacobs, do you have a specific page you want her to refresh her memory on?

MR. JACOBS: I want her to review the whole thing first, and then I can ask her questions about it.

MR. DUNN: I'm sorry. Mr. Jacobs, you want her to read the entire document before you ask your next question?

MR. JACOBS: I'd like her to look at it to familiarize herself with it, and then I'll ask you specific questions about it. She doesn't have to read it word for word.

Q. (By Mr. Jacobs) Do you remember providing this declaration in connection with this case?

A. Yes.

Q. And on Page 7, the signature, that's your signature?

A. Yes.

Q. And this declaration was written in English, correct?

A. Yes.

Q. Did you make sure that you

understood everything in the declaration before you signed it under penalty of perjury?

A. Yes.

Q. I want you to turn to the third page of the declaration, paragraph 10.

A. Yes.

Q. The second sentence. Let me read the first and second sentence: It says, "On Tuesday April 17th, 2007, the top of a small partially filled test tube broke. Such breakage is not uncommon. When Mr. Scott saw that the tube had broken, he jumped up and accosted me."

(Mr. Brunet helped with translation.)

Q. What do you mean when you say Mr. Scott "accosted you"?

A. I was in the middle of preparing the

sample, and when he saw that the tube was broken, he was behind me. He was on his chair, and he was behind me, and then he -- and then he accosted me, and said, "What on earth is happening?" while I was in the middle of trying to prepare the sample.

Q. Did he physically grab you?

A. No, not physically.

Q. Did he physically interfere with your work?

A. Yes. But from the way he reacted,

yes, because I was in the middle of preparing the sample, and that did disturb me.

Q. In paragraph 12 of your declaration, you state that "Mr. Scott and Dr. Davis' disruptive actions while I worked were not typical of observers of data reduction processing."

A. That's correct.

Q. Prior to this, you had only participated in two of these, right?

THE INTERPRETER: Two of these, what, Counsel?

Q. Two of these tests where there were observers?

A. Yes.

Q. So this isn't something that you had great experience in; is that correct?

A. Well, a lot of experience? Well, two is enough.

Q. I want to find out exactly what you mean when you say they were disruptive and intrusive, and I'm going to ask you a series of questions.

Did either Mr. Scott or Dr. Davis grab a sample bottle and throw it on the floor?

A. No.

Q. Did they touch the GC equipment or the IRMS equipment while you were operating it?

A. No.

Q. Did they ever physically prevent you from doing your work?

A. Well, the first two days, they were very close to me.

Q. Well, you understand that they have a right to actually observe what's going on, right?

A. To observe, yes.

Q. To observe, they have to be close enough to actually see what's happening, don't

they?

A. Close, but not very close.

Q. Was it that they were standing over your shoulder; is that something that made you uncomfortable?

A. Yes, they were close, yes.

Q. They were standing right over your shoulder?

A. Well, I was preparing, and they were right here.

THE INTERPRETER: And the witness is pointing to right next to her.

Q. You were in a courtroom yesterday when Dr. Brenna testified, were you not?

A. Yes.

Q. Do you remember he said he literally stood right over your shoulder while watching you perform your work. Do you remember that?

A. Yes.

Q. You never complained about that, did you?

A. Well, it isn't really comfortable to have people that close to me when I'm performing my work.

Q. Did Dr. Brenna make you

uncomfortable as well?

A. Well, not necessarily Dr. Brenna, but it's just the whole -- any kind of group of people that are around me.

Q. You never submitted a declaration complaining about Dr. Brenna being too close to you in this case, did you?

A. No.

Q. In fact, you never lodged any formal complaint about Mr. Scott or Dr. Davis and how they observed this testing, did you, other than this declaration?

THE INTERPRETER: Who was the other?

Q. And Mr. Scott.

A. Well, what I did was, when I felt -- you understand that I needed to be able to concentrate on my work. I put -- what I did was, I put a kind of tape, scotch tape, on the ground where they were not supposed to step over, which they were not supposed to step over, for whoever, whomever.

Q. You did that in the middle of this retesting process, right?

A. After the first two days, exactly.

Q. If we can get -- Exhibit 99 is the

International Standard in French, right?

And if we can go to section 5.2.4.3.2.4.

MR. MC LAREN: Is there a page?

MR. JACOBS: Yes, I'm getting there. It's Page 21 in the French version.

MR. CAMPBELL: What is it in English, Mr. Jacobs?

MR. JACOBS: Let me get it. And then I will know what I'm looking at. It's also Page 21.

Q. (By Mr. Jacobs) Now, the International Standard says that you have the right to have a witness removed if they interfere in the testing process, correct?

A. What paragraph are you referring to?

Q. It would be the last paragraph. I hope.

So if you felt that Mr. Scott and Dr. Davis were being too intrusive, you could have had them removed, right?

A. Well, according to that paragraph, yes.

Q. And you didn't do that, did you?

A. No.

Q. Now, this retesting was finished on April 23, 2007, right?

A. Yes.

Q. And shortly thereafter, the results of that retesting were reported in the media in the French newspaper, L'Equipe?

THE INTERPRETER: The French newspaper which?

Q. L'Equipe.

A. Yes.

Q. And that was on April 24th, correct?

A. Well, I couldn't tell you it was really the 24th, but I did learn of it, yes.

Q. Did you see the article?

A. Yes.

Q. I'd like to mark it as an exhibit.

MR. BARNETT: It will probably be simpler, Counsel, to mark it as a GDC exhibit just because --

MR. JACOBS: Okay. We'll do that.

What's the next exhibit number?

(GDC Exhibit 1154 was marked.)

Q. It's a printout of the article. Does this look to you like the article that you saw reporting the leaked results?

A. It does seem to be, yes.

Q. It's dated April 24, 2007.

MR. BRUNET: Would you, by any chance, have had an opportunity to have it translated?

MR. JACOBS: I had an opportunity to do a machine translation, which is fairly nonsensical.

MR. BRUNET: I would agree with you. Thank you.

Q. (By Mr. Jacobs) Do you recall seeing this article on or about April 24, 2007?

A. More or less, yes.

Q. And it specifically mentions that these tests that you had just run on Floyd Landis -- that some of them were positive, correct?

A. Yes.

Q. This was reported by Damien Ressiot of L'Equipe? Do you know Damien Ressiot?

A. No.

Q. You've never spoken with him?

A. No.

Q. Have you ever spoken with any reporter from L'Equipe?

A. No, never.

Q. Were you aware before April 24, 2007, that L'Equipe had reported leaked test results from LNDD previously?

A. No.

Q. I take it you didn't provide this information to Mr. Ressiot, did you?

A. Absolutely not.

Q. Did you ask Ms. Frelat if she provided this information to Damien Ressiot?

A. I never asked her that question.

Q. Did you ever ask Dr. de Ceaurriz, if he provided this information to Damien Ressiot?

A. I never asked him that question.

Q. Did you ever ask anyone at LNDD if they provided this information to L'Equipe?

A. No.

Q. Did Dr. de Ceaurriz ever ask you if you provided this information to L'Equipe?

A. No.

Q. Do you know if Dr. de Ceaurriz ever asked anyone at LNDD if they provided this information to L'Equipe?

A. I don't know. I don't know.

Q. Did Dr. de Ceaurriz ever express any

concern to you that confidential test results were reported in L'Equipe within 24 hours of the testing being completed?

THE WITNESS: Pardon?

MR. BRUNET: Could we have the court reporter read back the question, please?

(Reporter complies.)

A. He was not happy about it, no.

Q. What did he say to you about it?

A. Well, I don't -- I wouldn't be able to tell you exact phrases or sentences that he said, but I can tell you that he was not happy about it.

MR. JACOBS: Well, we'll ask him later.

I'm going to pass the remaining questions to Mr. Suh, who's going to ask you some questions about the log files, among other things.

EXAMINATION

BY MR. SUH:

Q. First of all, welcome to the United States. I know you've traveled a long way to be here. Nice to have you here.

We're going to talk a little bit

about some of the things we covered yesterday on your direct examination. We're going to begin with the log files.

Todd, could you go ahead and put up the first day that we have, April 17, those log files?

Ms. Mongongu, you recognize that

first page we talked about yesterday, right?

A. Yes.

Q. And you had testified that you had not seen that until very recently, correct?

A. I saw them when they were taken out of the laboratory when Mr. Botré was there.

Q. Before we get into talking about the log files specifically, you would agree with me, of course, that quality control is a critical part of any laboratory's work, correct?

A. Yes.

Q. And you would agree that a critical part, in particular, of a WADA-accredited lab, is performing adequate quality controls, correct?

A. Yes.

Q. And the process you described yesterday for quality control begins with

performance of stability runs, correct?

A. Could I have the sheet in front of me?

Q. Well, this -- I'm not asking you questions about the sheet yet. I'm asking you questions about your performance at LNDD.

MR. SUH: Can you read back the last question, please?

(Reporter complies.)

THE INTERPRETER: Can you go back to

the first again, please?

(Reporter complies.)

A. Well, first of all, you start by concentrating on the --

Q. (BY MR. SUH) I'm sorry. Let me interrupt you. Because it was a different question.

The question is that the quality control process begins with the performance of stability runs, correct?

A. No, you start by focusing on, by concentrating on, the CO2 detection.

Q. CO2 detection --

(Mr. Brunet interpreting in French.)

MR. BRUNET: CO2 stream?

THE INTERPRETER: -- detection stream.

MR. BRUNET: I don't want to intervene in the interpretation, but it's very technical, and we're trying to work this through.

THE INTERPRETER: Perhaps the flow --

A. It's to be sure that the instrument correctly detects the CO2.

Q. (By Mr. Suh) And that is a separate process from the stability runs, no?

A. Yes, it is.

Q. And then following that, the step in IRMS that you described yesterday was the performance of stability runs, correct?

A. Yes, that's it.

Q. And then following the performance of a stability run, is the performance of the cal mix IRMS analysis, correct?

A. Yes.

Q. And then following that, is the performance of the cal mix acetate, correct?

A. Yes.

Q. And then following that, is the

performance of samples and blank urines which correspond to each one of the fractions of the sample, correct?

A. Yes, that is correct.

Q. Followed by the performance of a cal mix acetate to wind it all up, right?

A. Yes.

Q. And this process is called a "sequence," correct?

A. Well, the sequence is separated into two. First of all, there is in the instrumental or instrument verification, and then there is the sequence of the samples and the blank urine.

Q. Would you describe these as two sequences or one entire sequence for one specimen?

A. Well, I suppose, yes, it could be one, one whole sequence. But I insist on the fact that, first of all, there's a verification of the performance, and then this is the injection of the samples.

Q. Right. The first part deals with quality control?

A. Yes.

Q. And the second part has both quality

control and sample testing, correct?

A. Yes.

Q. And this sequence or sequences -- if you want to call it two, that's fine -- for each specimen runs automatically, correct, in the IsoPrime instrument?

THE INTERPRETER: In the?

Q. IsoPrime instrument.

A. Yes.

Q. In other words, isn't it true that once you start the sequence beginning with the stability to the cal mix IRMS, to the cal mix acetate, to the blank, to the sample, blank sample, blank sample, cal mix acetate runs automatically, correct?

A. Well, you don't launch the sequence or initiate the sequence for everything.

Q. But the sequence is supposed to run -- sequences are supposed to run together, and they run automatically, correct?

A. I'm not sure I've understood that.

Q. Earlier, you just described the fact that this was an automatic sequence, right?

A. Well, yes, you start the sequence.

Q. And then after you start it, the

technician doesn't have to intervene in the sequence. It should run, right?

A. No, you can intervene in the sequence.

Q. You can intervene in the sequence, but the sequence is designed, once you start it, to run automatically unless the technician intervenes.

A. No, the technician can decide to launch line by line.

Q. Let me ask you this way, because I think we're lost in translation.

It is the process by which this sequence is supposed to run, and they run one right after another, correct?

A. Yes.

Q. And that the instrument, the IsoPrime instrument, unless a technician intervenes, will run automatically, correct?

THE WITNESS: Mm-hm?

A. (By Interpreter) Yes.

Q. And in fact, the series in which --

the order in which this sequence runs is important, correct?

A. Yes.

Q. And it's run this way every time, correct?

A. Yes.

Q. And you would agree that the results from each of these steps is important, correct?

A. Yes.

Q. And that the results from each of these tests are results that should be monitored in the testing process, correct?

THE INTERPRETER: Between -- in the what process?

Q. The testing process.

A. Yes.

Q. We do all of these steps for a reason, right?

A. Yes.

Q. Okay. And, in fact, let me show you, before once again, we go, what is Page 37 of USADA's brief.

Madam interpreter, could you read the highlighted portion?

(Interpreter read in French the highlighted portion, which was the first sentence of Page 37 of USADA's brief.)

MR. BARNETT: And before we ask

questions about this sentence, it's probably appropriate to read the footnotes as well, just for clarification.

MR. SUH: All right.

(Interpreter read the footnote in French.)

Q. (By Mr. Suh) Now, you would agree with this statement, for example here, in USADA's brief, that the mix cal acetates were run immediately before and after Respondent's A and B Sample --

THE INTERPRETER: I'm sorry. Counsel, can you slow down just a bit?

Q. You would agree that with this statement that the cal mix acetate -- this is for Respondent's, Mr. Landis', 995474, the Stage 17 -- Stage 17 is fine -- should be brought immediately before and after the sample for the procedure you just described, correct?

A. Yes.

Q. Now we can go to --

Todd, can you put up GDC 1056?

MR. BARNETT: And can we provide a written copy for the witness as she requested?

Now, you were asked a little bit

about this yesterday. I'm going to show you what is beginning at 11:42:51, which is where it says, Commencing analysis of 1704MixCalIRMS01, and followed, four lines below that, the results saved to 1704MixCalIRMS.raw.

Do you see that?

A. Yes.

Q. Followed by, four lines below that, once again, Commencing analysis of MixCalIRMS01, followed by three lines below that, CalMixIRMS01.raw; and then following way at the bottom there, 12:17:43, it says again, Commencing analysis.

A. Yes.

Q. And I believe yesterday you testified that you were the one that handled this particular portion of the retesting on the IsoPrime instrument, correct?

THE INTERPRETER: On the what?

Q. On the IsoPrime instrument.

A. Yes.

Q. And that it was your decision to give the same file name to each of these entries you see up here?

A. Yes.

Q. And you realized that when you use the same file name, that the data from the previous file is deleted, correct?

A. Yes.

Q. And I believe you testified yesterday that the reason why this occurred this time is because you had to prime the liner, correct?

MR. YOUNG: And which "this" are you talking about?

MR. SUH: It was this process right in here.

THE INTERPRETER: Prime the liner.

MR. SUH: Let her answer the question. I can answer your question.

DR. BOTRÉ: I don't know it in French.

MR. YOUNG: Whoa, whoa, let me object.

THE INTERPRETER: Just a moment.

MR. BRUNET: Mr. Young.

MR. YOUNG: And what I think is important -- what I think is important is that if he's talking about "this" meaning all, any part of the things he's highlighted, or whether

he's talking about it being all of what he's highlighted, because that -- if that's what he's talking about, it's not accurate. I just want to make sure that the witness understands what he's talking about by "this."

THE INTERPRETER: I didn't interpret that. I'm going to wait until you ask the question again, Counsel.

Q. (By Mr. Suh) Let's try this.

I believe yesterday you testified that the reason why you reran CalMixIRMS01, right there --

MR. BRUNET: Mr. Suh, could you point to the screen, perhaps?

MR. SUH: Sure.

Q. From here to here, and then, once again, down here --

MR. BARNETT: If I may, given that they each have time stamps, wouldn't it be more accurate for the record to refer to the time stamps?

MR. SUH: The reason why --

MR. BRUNET: Sometimes time stamps, Mr. Barnett, are identical, and referring to 12:05:22, for example.

MR. BARNETT: I agree, but we can still be more accurate than "here" and "here" for the record.

Q. (By Mr. Suh) At 11:48 -- of the four entries timed at 11:48:08, the highlighted, of the four entries -- three entries entitled 11:49:43, the highlighted one, down again to the last one at 12:17:43.

Do you see that?

A. Yes.

Q. And your explanation was that you had to prime the liner, correct?

A. Yes.

Q. And when you prime the liner, describe for me what that means.

A. Well, when you put a new insert on the instrument, on the GC, you have to basically perform a few injections to condition it, to prime it.

DR. BOTRÉ: To condition it.

THE INTERPRETER: To condition it, okay.

Q. So it's your testimony that you started this sequence beginning with the stability runs and then stopped, changed

something with the instrument, and then primed the liner?

A. No. Wait a moment. The priming of the liner, above all, you change the liner before you do the quality control.

Q. Haven't you been taught to change the liner prior to the time you begin the testing sequence which you described as should have been run in order?

A. I didn't understand. Can you just reread back the question?

THE REPORTER: Read: "Haven't you been taught to change the liner prior to the time you begin the testing sequence" --

THE INTERPRETER: Yes.

THE REPORTER: -- "which you describe as should have been run in order"?

A. But the changing of the insert has nothing to do -- has nothing to do -- has nothing to do with the sequence.

Q. What I understand you to be saying is that you performed instrument maintenance after the stability ran --

A. No.

Q. And before the cal mix -- before the

sequence was completed?

A. The changing of the liner was done before all stabilization.

Q. And so the way to charge the liner after the stabilities were run in this particular sample?

A. The stability -- the stability is to see if the mass spectrometry is stable.

DR. BOTRÉ: Spectrometer.

THE INTERPRETER: Spectrometer -- sorry -- is stable.

Q. How many times have you changed the liner in the IsoPrime instrument?

THE INTERPRETER: In the actual

what?

Q. In the IsoPrime instrument.

A. Well, a lot; I mean, really a lot of times.

Q. Approximately how many times?

A. Well, let's see, I don't really know, now, but I would say maybe once or twice a week.

Q. Once or twice a week, you change the liner, and then you charge it, right? Correct?

A. Yes.

Q. Now, you didn't take any notes contemporaneously that you changed the liner at this point, did you?

A. Well, it would be in the --

MR. BRUNET: You mean the maintenance log?

THE INTERPRETER: The maintenance log.

A. -- that's done in the maintenance log that's right next to the instrument.

THE INTERPRETER: Thank you.

Q. Did you consult the maintenance log prior to your testimony here today?

A. Yes.

Q. You consulted the maintenance log before your testimony today?

A. Yes.

Q. At this time --

MR. BRUNET: Just, I want to be sure that we're not lost in translation here. When you're referring to the log, you're referring to the maintenance log, not to be concerned with this log?

A. You're talking about the maintenance log of the instrument?

Q. Yes. You consulted the maintenance log of the instrument before your testimony here today; is that your testimony?

A. Yes.

MR. SUH: Mr. Chair, I would request that LNDD produce that -- just this one day's maintenance log.

MR. BRUNET: It seems fair to me. Is it possible to -- what timeline can we look at it? I guess, we can do it during lunch. Is that possible?

MR. BARNETT: This is not, to my understanding, a document that we have here.

MR. YOUNG: This is not a document that we have. But what we can do is we can try to get ahold of, well, people in Paris; although, it's 8:00 at night there.

MR. BRUNET: My understanding is that she had consulted it today or --

MR. BARNETT: The question was: Did

you consult it before your testimony. Perhaps if Mr. Suh would like to be specific and ask her when she consulted it, we can clear this up.

MR. BRUNET: And then, perhaps, we can get back to it if and when you can provide

us with the document.

MR. SUH: Certainly.

Q. (By Mr. Suh) Tell me the other times in April that you changed the liner, April of this year.

A. How many times I changed the liner?

THE INTERPRETER: In April?

Q. This month. This month that we're looking at. It's dated April 17th. She's saying that she remembers that she did it. How many times in April did you change the liner?

A. How many times? Well, as I told you before, I change it once or twice a week.

Q. So you're saying you don't remember how many times?

A. Yes.

Q. How many times in March of 2007 did you change the liner?

A. Oh, I don't know.

Q. How many times in February did you change the liner?

A. I don't know.

Q. How about January? December 2006?

November 2006? October 2006?

A. No.

Q. September 2006?

A. No.

Q. Let's go forward. How about May 2007? Did you change the liner?

THE INTERPRETER: Do you know how many times, are you asking?

Q. Yeah, how many times?

A. No.

Q. The only time you remember a specific date changing the liner was right here, correct?

A. Yes. Why --

Q. I'm sorry.

MR. BARNETT: Wait a minute.

MR. SUH: I'm sorry. I didn't hear what she said.

THE INTERPRETER: She's saying: "Why?"

MR. BARNETT: That's because you cut her off, Mr. Suh. If you'll allow her to continue what she said.

A. I remember changing the insert, because -- the liner, because we were starting those specific analyses, and so I said -- I said to myself, I'm going to change this liner, and

I'm going to put a new one in. That's why I'm certain that I changed the liner, because -- that I'm certain that I changed the liner on the 17th of April of 2007.

Q. (By Mr. Suh) Oh, I see. You're saying that you remember you changed it on -- in April 17th, 2007?

THE INTERPRETER: Yeah, on April 17th, 2007.

Q. Do you remember changing it in conjunction with these particular entries here?

THE INTERPRETER: With these particular entries?

Q. The ones we're looking at up here.

A. Each time that I put a new liner in, I condition it.

Q. Now, you realize that if you conditioned it, you could have changed it with a different file name, correct?

A. I could have done it, but I didn't do that.

Q. Now, I believe you testified yesterday that it was -- the entry down here, at 12:17:43, Commencing analysis of 1704MixCalIRMS was the one you intended to keep?

THE INTERPRETER: Was the one you

intended?

A. Yeah, that's where I started.

Q. All right. And this is the one that -- your testimony yesterday that this is the one you intended to keep, correct?

A. Once I did my two injections of charging the liner, I started doing the analysis of the precision of the instrument --

Q. And I'm just going back to your testimony yesterday in which you said that this is the one -- this run is the one you intended to keep, meaning, that the other two didn't matter because they were charging the liner, correct?

A. From what I remember, from what I think I said yesterday, the one at 11:48:08 and 11:49 and 12:06, those were to charge the liner.

Q. And was it or was it not your testimony yesterday that the very one at the bottom there is the one that you intended to keep?

A. That's where I started to check the precision, yes.

Q. I'd like to hand you what is now

marked LNDD 921 through 1014. I'll give you a copy right here. Just for the record, it's a copy of the doc pack from that day, Stage 19.

MR. WEISS: Exhibit 87.

MR. DUNN: Why doesn't she just use the exhibits that are here?

MR. BARNETT: Can we use the joint exhibit book as we've agreed?

MR. SUH: Sure, this one has a tabbed page. I might help her.

Q. (By Mr. Suh) Go ahead and take a look at those exhibits.

THE INTERPRETER: Can you show her the numbers, Counsel?

MR. SUH: Sure.

GDC 921, LNDD 1001.

MR. BARNETT: Just for the sake of the record, you were not going to reproduce documents that we've produced. It's in our exhibits. My only point was that so we can compare testimony, we use the same exhibit book.

MR. DUNN: USADA Exhibit Number 87.

MR. BARNETT: USADA Exhibit 87.

Q. (By Mr. Suh) Turn to LNDD 1001, and show me where on those pages you see the results

for this test of CalMixIRMS01 commencing at 12:17:46.

THE INTERPRETER: I'm sorry, Counsel. That was too fast.

Q. Sorry.

The CalMixIRMS for 1704?

A. Where I see what?

Q. The results for this, this one right here. I'll just put a little check mark by it.

THE INTERPRETER: Counsel, I don't see where you're putting the check mark. Thank you.

Q. That's the one we're talking about. Show me where in the doc pack where the results are for that -- for that test, for that run.

Do you see where it is?

A. No.

Q. It's not in the doc pack, is it?

A. No.

Q. All right. I'd like to turn now to the next page on the log file.

THE INTERPRETER: Of what?

Q. On the log file, which is GDC 1057. And if you look at 4-17-2007, same date, and you go to 14:42:01, it says, Opening sample log

file. And you'll see below that, stretching onto Page GDC 1058, a number of entries that say, Processing sample Number 1, Number 2, Number 3, Number 4, Number 5, Number 6, 7, 8?

Right there.

Do you see that?

MR. BRUNET: Mr. Suh, which page?

Q. 1057, GDC 1057, at the bottom of 1057 and the top of 1058. Do you see where it says, Processing sample 1, 2, 3, 4, 5, 6, 7, 8?

And then on to Processing sample 1, 2, 3, 4, 5, 6, 7, 8?

Do you see that?

A. Yes.

Q. And you see that between the two sequences, or series, there's a ten-minute delay at 15:34:38 to 15:46:27.

THE INTERPRETER: I'm sorry. 15, what?

Q. 46:27. Right where that red line is. Do you see that?

A. Yes.

Q. What happened in that ten-minute gap?

A. I'm not sure what that represents,

in fact.

Q. Well, there's a time gap of 15:34:38 to 15:46:27. What happened in the approximately 11 or 12 minutes or so?

A. I don't know.

Q. Okay. Why don't we go down to the bottom of that sample.

Todd, just keep on scrolling down to the bottom of below 15:48:12. Make the box a little bigger. Just make the box a little bigger, up, up, up, up.

Do you see at the top there, the top entry 15:48:26?

THE INTERPRETER: No.

Q. And then below that, there's an entry at 18:21:42. That's a two-and-a-half-hour time gap. What happened in that two and a half hours?

MR. DUNN: Well, I'm sorry. I'm going to have to object on the grounds of lack of foundation. I don't think he's established that this witness was operating at this point, has a familiarity with this document sufficient to answer a question about why there's a gap in any particular time.

MR. BRUNET: Mr. Suh?

MR. SUH: This is -- before we started, we had an agreement that we would not make foundational objections. Mr. Dunn wasn't part of that agreement. I had that discussion with Mr. Barnett on the phone. This is arbitration. We indicated that if we had foundational issues, we would raise them beforehand. And moreover, consistent with the expedited nature of the arbitration, which they've always been talking about -- we're fine with that.

MR. BARNETT: We'll withdraw it in the expedited nature of moving things along.

Q. (By Mr. Suh) Tell me what happened in that two-and-a- half-hour time gap.

A. I don't know.

Q. All right. Let's turn down now to the time entry at 19:52:43, on that same day. Do you see that, where it says, Commencing analysis of 17:04 blank urine F2?

A. Yes.

Q. I'm sure it will get highlighted in a minute.

Below that, at 20:17:24, you see

that the result is run. Four lines down from that, once again, commencing the sample analysis of 1704 Blank Urine F2.

All right, and then, once again, at 21:08:36, running out that sample at 1704 Blank Urine F2.

Do you see that?

A. Yes.

Q. Now, of course, the data from the preceding one is gone, correct?

A. Yes.

Q. I'm sorry? Is --

A. Yes.

Q. And when -- why did you decide to start that sample run over again?

MR. BARNETT: Mr. Suh, can we just have the page reference again for the blowup?

MR. SUH: Sure. The blowup is 1050 to 1058.

MR. BARNETT: Thank you.

A. There was no acquisition --

MR. SUH: Todd, I'm going to need you to bring that up again, please.

Q. (By Mr. Suh) Why did -- Ms. Mongongu, why did we -- why does this record

show that you deleted the data from the first one and started again?

A. Well, there was no data from the 1704Blu1F2, because there was no complete -- there was no complete processing.

Q. (By Mr. Suh) And you remember that there was no complete processing?

A. Well, I see it there on the log.

Q. Aside from what's here on the log, do you have any other notes or anything else that helps you remember that the processing wasn't complete?

A. No. It's there.

Q. And what is there that tells you that the processing wasn't complete?

A. You see, at 17:52 --

THE INTERPRETER: 19:52. Sorry.

A. -- it says that commencing analysis of 1704Blu1F2. At 20:17, it says that it is saved on 1704Blu1F2.

There is no written entry that the processing was complete, whereas there was, as there was in the case of -- as there was in the case of 21:08, where it says that the processing was complete. I see it here.

THE INTERPRETER: Witness is pointing to the book.

Q. I would like you to -- look at GDC 1060.

THE INTERPRETER: 1060?

Q. Mm-hm.

MR. YOUNG: Excuse me. When she was pointing to her book, could we see that on the screen, what she was pointing to?

MR. BRUNET: The reference is 21:08:51?

MR. YOUNG: Correct.

And you can use that laser pointer to point at the screen, once they get it.

MR. SUH: Are we ready to move on?

MR. YOUNG: Is the Panel following along in their books or on the screen? That's the --

MR. BRUNET: I'm following in my book. We're all using the book.

MR. YOUNG: Okay. Then, thank you.

Q. (By Mr. Suh) When you say that the processing wasn't complete, why did you stop the process early?

A. It was to put -- before finishing,

before ending, it was to put in liquid nitrogen in the cold trap.

Q. And how did you know that liquid nitrogen needed to be put in the cold trap?

A. Because I know that at the end of a certain period of time, in order for the sequence to continue, I have to fill my cold trap.

Q. And how do you remember that on that time you had to stop the sequence and fill the cold trap?

A. I do it all the time before starting. Before starting, I always add the liquid nitrogen.

Q. Right. So how do you know that on this time, on this particular time, you stopped to add liquid nitrogen?

A. You're asking if I know the precise time?

Q. No. I'm asking her how does she remember that she did that on this occasion.

A. I can't say that at that particular time. I don't remember specifically, but what I do know is that I do this, I do do this in the process of doing my procedure, in -- as part of the procedure, I do this.

Q. So you're assuming at this time, at the time that you had to fill the cold trap?

A. Yes.

Q. All right. Let's move on to GDC 1060, and at the top there, at the entry right at 9:49:41 to 10:04, you will see the time log. There is a -- about a ten-minute gap in the sequence. It's a little more than ten minutes. It's 9:49:41 to 10:04:53.

Do you see that?

A. I'm looking for it. Yes. Yes, I have it.

Q. Do you remember what happened in that time gap?

A. No.

Q. Running down the same page now, going down to time entry 11:21:41 -- I know that little entry isn't clear. It looks like underneath, in my copy, you can read, Starting inlet method.

THE INTERPRETER: Starting what, Counsel?

Q. Starting inlet method or inlet script.

But looking at it, Ms. Mongongu, can you tell us what happened during the time gap between those two entries?

THE INTERPRETER: Between what?

Q. Those two entries.

A. Between 11:21 and 12:16.

Q. Yes, in that time gap?

A. No.

Q. Let's turn to GDC 1061. Going down to 17:37:52, do you see there's a time gap between those two entries of about 50 minutes?

THE INTERPRETER: 50?

Q. 5-0. Can you tell me what happened in that time gap?

A. When I'm looking at the book, here, there were two samples that were injected on that day. So I don't know what happened between 17:37 and 18:28.

Q. All right. Could you go down just a few more lines to 19:12:45 to 19:29:17. And there's a time gap of about 16 minutes there. Can you tell me what happened in that time gap?

A. No.

Q. Okay. Let's turn to Page GDC 1063. And look at the time entry at 10:52:15 and

11:09:42, and tell me what happened between that time gap.

A. I don't know.

Q. All right. A few lines down below that at 11:54:09 and 12:29:52, do you remember what happened in that time gap?

A. No, but was I the one who was on the instrument at that particular time?

Q. My question is whether or not you remember anything about it.

Do you remember anything about it?

A. No.

MR. BRUNET: Mr. Suh, can we break for lunch?

We'll reconvene at 2:00.

(Recess taken from 12:14 to 2:00 p.m. for the noonhour.)

MR. BRUNET: Welcome back, everyone.

Mr. Suh, do you want to resume?

MR. SUH: Thank you. We'll consider the witness sworn.

Q. (By Mr. Suh) Ms. Mongongu, I would like to turn your attention to page 1064, and if you could turn your attention to the time at 15:31:14 and

15:39:16? You see that there is an eight-minute gap there, or about eight minutes?
Can you tell me what occurred in that time gap?

A. No.

Q. Turning your attention a little bit further down the page at time gap 17:08:22. The next entry is at 18:03:46. Can you explain what happened in that time gap?

A. No.

Q. Turning to USADA Page 1066. Excuse me, GDC 1066. Do you see that there is a time gap at 10:27:41 and 10:54:29? Can you tell me what happened in that time gap?

A. No.

Q. Going down the page a little further, you'll see an entry number -- a time entry at 11:26:19. It indicates, that time entry, Commencing analysis of 2004MixCalAcetate01?

And do you see, three lines later, that there is a file saved to 2004MixCalAcetate01? And then 1, 2, 3, 4, 5, 6 lines below that, at 12:22:45, once again, Commencing analysis of 2004MixCalAcetate01.

Do you see that?

A. Yes.

Q. And on the next page at 1069, the data run at -- the very top line, 13:06:48, MixCalAcetate01, correct? 13:06:48, the very first entry.

Todd, we're going to have to switch back and forth between those two pages.

And of course, when the cal mix acetate was rerun and saved to the same file name, the first file -- the data of the first file is deleted and no longer part of the record, correct?

A. Yes.

Q. And why did you run mix cal acetate again here?

A. Because the first mix cal acetate was undoubtedly not correct.

Q. And did you take any contemporaneous notes of the first mix cal acetate being not correct?

A. No.

Q. So the record of the first mix cal acetate that was not correct no longer exists, right?

A. No.

Q. And you remember that the first mix cal acetate was not correct from your memory alone, right?

A. If I did a second mix cal acetate, it's because -- it was because the first one was not correct.

Q. Turning your attention to right in that frame, you have a time gap at 12:09:27, and there is a time gap between 12:09:27 and 12:22:42.

Do you see that?

A. Yes.

Q. Tell me what occurred between 12:09:27 and 12:22:42, if you remember.

A. No.

Q. No, you don't remember?

A. No.

Q. I'd like to turn your attention to GDC Page 1069. Do you see at 4:21:07, at 8:45:31, it says, Starting acquisition. And there is a -- two lines below that, the stabilitie1.raw file, four lines below that, or five lines below that, four lines below that, at 8:47:35, Starting acquisition again is saved again to stabilitie1.raw.

1, 2, 3, 4 lines below that, Starting acquisition again, saved to the same file name, stabilitie1.raw.

Do you see that?

A. Yes.

Q. Now, why did you rerun stabilitie1.raw as shown on this?

MR. BARNETT: I do have to object. It's not foundational, but to the extent that you're characterizing the document that she did something, that you probably do need to clarify whether or not it was her.

Q. Do you recall this particular sample?

A. No.

Q. I'd like to turn your attention to GDC Page 1071. Go to line 17:18. Look at the time gap between 17:18 and 18:06:46. If you remember what happened in that time gap?

Do you remember what happened in that time gap?

MR. BARNETT: And are we going to clarify whether that is her sample or not?

MR. SUH: Yes, this is her sample.

MR. BARNETT: Well, let's ask the

witness just for the record's sake.

MR. BRUNET: Mr. Suh, can you ask the witness?

Q. (By Mr. Suh) Yes. Do you recall that you processed the sample on April 21st of 2007?

A. The 21st -- the 21st of April of 2007?

Q. Yeah.

A. That I had performed a sample?

Q. Yes.

A. Yes.

Q. Do you recall what happened in this time gap when you were processing this sample?

A. No.

Q. Let's go up the page a little bit to 15:10:55, a time gap of approximately 38 minutes or so, the same day.

Do you recall what you did during this time gap?

A. No.

Q. I'd like to turn your attention to 1073 at time entry 13:09:02 in which you began the analysis of the CalMixAcetate01.

MR. BARNETT: Again, just if we're

going to use the phrasing that she began, let's at least make sure that she --

Q. Do you recall that on April 22nd, processing some of the retesting samples?

A. Yes. Yes.

Q. Showing you now, at 13:53, the running of the sample MixCalAcetate01 and going down 1, 2, 4, 5, 6, once again, Commencing analysis of MixCalAcetate01 -- 1, 2, 3, 4, 5 -- excuse me -- 1, 2, 3, 4 lines down, file saved to MixCalAcetate01. And then going down four lines below that, Commencing analysis of 2004MixCalAcetate01 again, and then three lines below that, saving the data once again to MixCalAcetate01. Saving the data to MixCalAcetate01 at line 14:41:39, which is on the bottom there, resulted in erasing the data from the first two runs, correct?

A. Yes.

Q. And why did you rerun the MixCalAcetate01 three times?

A. Well, what I'm able to see from the log is, there was a first injection that was done at 13:09, and then there was a second done at 13:55, and then with the IsoPrime interest,

there was some kind of a problem, and it didn't perform or do the acquisition because at the time of 13:55, what is written is IsoPrime -- I'm sorry -- at 13:55, it says IsoPrime is not waiting to acquire. "WaitTillRunning," the 1:55:43. And so then at 13:55:47 -- no -- 13:57, there was a second injection of mix cal acetate.

Q. You just described the fact that there was a problem with the injection at 13:55:13 showing as the 13:55:43 where it says "WaitTillRunning," right?

A. Yes.

Q. That was your answer to my question of why you reran this three times, right?

A. My answer is that I injected it twice, not three times.

Q. Let me show you. First of all, tell me: How long does it take to run a mix cal acetate?

A. About 45 minutes.

Q. Right. About 45 minutes.

So I'm going to write on this screen. I hope this works again.

Do you see that -- I'm going to put

an "X" here by that top one at 13:09:02. And then at 13:53, the data was acquired.

Do you see that?

A. Yes.

Q. Now that's about 45 minutes now.

A. Yes.

Q. Which means the first one ran with no problem, correct?

A. Yes, it was injected, yes.

Q. But you didn't say that when I just asked you why you reran it.

THE INTERPRETER: What? When I just asked you?

Q. She didn't say that when I just asked her that. She pointed to the one right here, where the Y is.

My question for you is, after you reran this sample, why did you rerun it here with the same sample number, thereby deleting this one forever?

A. Because the mix cal acetate that was run was not correct.

Q. You did for Stage 17, a Sample A IRMS analysis, correct?

A. Yes.

Q. I'd like to show you, now on the

projector, what is USADA 155.

MR. BARNETT. And give her an opportunity to look at the hard copy.

MR. SUH: Absolutely.

MR. CAMPBELL: Mr. Suh, what exhibit is that?

MR. SUH: Exhibit -- USADA 155 and Exhibit 24.

Q. (By Mr. Suh) When you look at USADA 155, and circling your number there. That's your operator number, correct?

A. Yes.

Q. I'm going to turn you to the same exhibit number, USADA Page -- this is 181, and I'm going to zoom in now.

And I'd like you to tell me what the acquisition time and the current time is shown on USADA 181.

A. The acquisition time is the time that the injection is done.

Q. Right here, right? 10:53:37?

A. Yes.

Q. And the current time is 11:39:17, correct?

A. Yes.

Q. And now this is for the mix cal acetate 001 A, right?

A. Yes.

Q. 100 nanograms injected. Now I'm going to turn your attention back to USADA 155. I'm just going to highlight where it is in the sequence, okay? You tell me if I'm wrong, though.

There it is, right?

A. Yes.

Q. All right. Now, if you look, what is the next thing that occurs in the sequence -- well, let me just ask you the question: What's the next thing that occurs?

A. There's the injection of the blank urinary, F3.

Q. It's this one right here. You inject this one right here, the blank F3, right?

A. Yes.

Q. Okay. All right. Now -- sorry. I've got a lot of pieces of paper up here.

And then I'd just like to go down in sequence, that's right. The next one -- I'm just going to highlight them as I go, okay?

Take your pick, so you can see.

The sequence is the F3 sample, the blank F1, the F1 sample, the blank F2, the F2 sample, and the mix cal acetate, right?

A. Yes.

Q. Now, this is that F2 sample -- let me try to put them up at the same time. This is that F2 sample -- that's not clear at all.

Let's do this one step at the time. This is the F2 sample, correct? It's USADA 166.

A. Yes.

Q. That's the last thing in the sequence is this one right here, right? Okay?

A. Yes.

Q. And the acquisition time on this one is 15:25. Right?

A. Yes.

Q. And the current time is 16:10:31, correct?

A. Yes.

Q. Okay. Now, I'm going to go to the last mix cal acetate. That is -- you see the mix cal acetate 001 A2, right?

MR. YOUNG: Again, could we have the page?

MR. SUH: Sorry. USADA 183.

Q. And look at the acquisition time here. It's 20:39, right?

A. Yes.

Q. And the current time is 14:24:44. Now, the reason I want to show this to you, and the reason it's important, is when I put these two side by side, this is the last sample fraction, right? This one right here, that's the last sample fraction, right?

A. Yes.

Q. And this one is the last mix cal acetate, right?

A. Yes.

Q. How much time separated the last mix cal acetate from the running of the last sample, if you can calculate that for me, please?

A. About five hours.

Q. About five hours, right?

A. Yes.

Q. So, in any case, this last mix cal acetate was not run immediately after this one, right? It was run about five hours later, right?

A. Yes.

Q. And there's no record here of what happened in those five hours, now, is there?

A. No.

Q. This is the sequence that was supposed to run automatically, correct?

A. Yes.

Q. Does the sequence automatically pause every time for five hours between the last sample and the mix cal acetate?

A. No.

Q. What happened in this five-hour time gap?

A. If the mix cal acetate was injected

at 20:31 -- what was it, 20:31.

Q. 20:39?

THE INTERPRETER: 20:39, sorry.

A. It's because it's on the level of the sequence. I must have added it at that time.

Q. On the level of the sequence, you must have added it at that time?

A. Yes, because I remember that there was some -- there was a problem. And when I went to look to see that the whole sequence had run properly, I must have noticed that the mix

cal acetate had not been injected, and so I corrected the error by placing it at the end of the sequence.

Q. Did you make any notes contemporaneously of the fact that you forgot to somehow add the mix cal acetate at the end?

A. No.

Q. Now, you testified before that when you did the sample, you didn't know it was Floyd Landis' sample, correct?

A. No.

Q. And this occurred -- the testing occurred on this date, July 23rd of 2006, right?

A. Yes.

Q. And your testimony is now, sitting here, you remember way back then that there was a problem that you had forgotten at that time to add the mix cal acetate. That's your testimony?

A. What I'm saying is that if it was injected at 20:39, is that it was because, at that time, I asked for the acquisition of the mix cal acetate.

Q. Do you recall earlier on today when you testified that you could not remember anything about the times you had called or

serviced on the IsoPrime instrument when it had a problem?

A. No, I didn't remember the exact number, right.

Q. You couldn't remember the exact number or the dates or times or anything, correct?

A. That's correct.

Q. But you remember this one IRMS test that occurred in July of 2006 which explains this one time gap. That's your testimony; is that right?

A. Well, what I'm saying is that there's a sequence and that it was injected at 20:39, so that is then the time at which -- that the mix cal acetate was injected. That's what I'm saying.

Q. Well, everybody knows it was injected about five hours later now. The question is, why did you do it that way?

Your testimony is you now have a present-time recollection of what occurred --

THE INTERPRETER: Wait a moment.

Q. -- in July of 2006, without ever knowing at that time that this was an unusual

IRMS test in any way. That's your testimony?

THE INTERPRETER: I need to have it read back to -- to interpret it.

Q. Let's have it read back.

(Reporter complies.)

A. I said the mix cal acetate -- I said that was when -- that particular time was when the mix cal acetate was injected, that I can see that from the sheet, from the paper, that it was done at 20:39. That's what I'm saying.

Q. This test -- just to be clear, this test only takes about 45 minutes or so to do, as you previously testified, right?

A. Yes.

Q. And the time gap between this and this is about five hours, correct?

A. Yes.

Q. I'd like to show you USADA 175. Do you see 175? And at the bottom of 175, do you recognize what I'm circling here? That's your name, right, your operator number. That's your signature --

A. Yes.

Q. -- where you validated, at the top, the calibration of the instrument? Correct?

A. Yes.

Q. I'd like to turn your attention now to USADA 331. Why don't you take a look at that. And while you're looking at that, why don't you confirm for me that you were the supervising technician for the Sample B?

THE INTERPRETER: For the what? The Sample B?

Q. The Sample B IRMS test.

A. Yes. Yes.

Q. Okay. I am, once again, going to turn your attention to -- and this is Sample B at Stage 17? Yes?

A. Yes.

Q. Sorry. For the record, you have to actually give an audible response, not just nod your head.

A. Excuse me.

Q. Now, once again. The same automatic sequence, supposedly automatic sequence, running 1, 2, 3, 4, 5 stability runs this time, 1, 2, 3 Mis Cal IRMS, one mix cal acetate, one blank F3, one sample F3, one blank F1, one sample F1, one blank F2, one sample F2, capping off with a mix cal acetate, correct?

A. Yes.

Q. Okay. This is that same automatic sequencing that we've been talking about, correct?

A. Well, yes, that's the sequence of the sample.

Q. I'd like to show you what is USADA 360 of Sample B IRMS. And if you look up here, right in the highlighted portion, could you tell me what the acquisition time is and what the current time is?

A. The acquisition time is 12:24, and the current time is 13:45.

Q. And then just so it's perfectly clear to everybody, that is -- that one we just looked at is this one right here, correct?

A. Yes.

Q. Okay. Now, I'd like to show you USADA 347. USADA 347, when you look at it, is the blank one 204 which is the blank urine pool for the F3 fraction, right?

THE INTERPRETER: For the what fraction?

Q. For the F3 fraction.

A. Yes, that's correct.

Q. And just going back, so we are absolutely clear, when we look at the sequence file, that's this one right here, right?

A. Yes.

Q. That's the one that was supposed to take place right after the one we just saw, the mix cal acetate, correct?

A. Right away? Well, yes. Well, it's the one that follows the mix cal acetate.

Q. Let me show you, going back to USADA 347, can you tell me what the acquisition time is and the current time is on USADA 347 for the blank pool urine F3 fraction?

A. The acquisition time is 17:03.

Q. And the current time?

A. 07:47.

Q. Okay. I'm going to put them side by side now. Calculate for me the time difference between the time that the mix cal acetate 01 ran and the time the blank urine for the F3 sample ran.

THE INTERPRETER: I'm sorry. From the time --

Q. I'm sorry. From the time mix cal acetate 01 ran, and the blank urine, F3, ran.

The one that was supposed to go right afterwards.

A. All right. So once you prepare the machine --

Q. No, I'm sorry. I'm just asking for the time gap. What's the time gap?

A. Oh, the time gap?

Q. The time gap between this one and this one? Right here and right here.

MR. BRUNET: Mr. Suh, which -- I'm sorry. Which two?

MR. SUH: It's USADA 347, it's this one right here.

MR. BRUNET: And 360.

MR. SUH: And USADA 360.

A. About four and a half hours.

Q. (By Mr. Suh) And normally, as you testified earlier, the mix cal acetate takes about 45 minutes to run, correct?

A. Yes.

Q. Tell me what happened between here and here.

A. Nothing happened. What -- nothing happened.

Q. Do you remember that nothing

happened?

A. Well, when I see the sequence, I see that the mix cal acetate ran before the blank urinary.

Q. That wasn't my question. My

question is, do you remember what happened between this one and this one?

A. No.

Q. Okay. But you remember what happened on the A Sample, correct?

A. On the one that I did, yes.

Q. I'd like to show you USADA 354. USADA 354 is the calibration of the instrument. And then, at the bottom of USADA 354, do you recognize your operator number and your signature as the person who was responsible for the validation of this process?

THE INTERPRETER: Responsible for what?

Q. The validation of this process.

A. Yes.

Q. Right there.

I'd like to show you now -- I'm going to talk to you about something different. We're going to talk about internal standards,

specifically 5-alpha AC. Instead of calling it 5-alpha androstenol or androstanediol, I'm just going to call it 5-alpha AC, okay?

A. Okay.

Q. Now, you admit in your direct examination that there were a number of times in which the 5-alpha AC was measured out of the measurement of error.

THE INTERPRETER: Out of the measurement of error? I'm sorry.

Q. Yes. Outside of the measurement of error during the testing of Stage 17?

MR. YOUNG: Are you asking her to look at the document?

MR. SUH: No, I'm asking her if she remembers she testified to that.

A. Yes.

Q. Do you remember that?

A. Yes.

Q. Now, the internal standard -- why don't you tell me where the internal standard 5-alpha AC appears. In which solution did it appear? Which solutions during the sequence?

A. The sequence of the internal standards?

Q. Yes, in which solution did it appear? Just tell me right off. For example, let me ask you this: Did it appear in the stability?

A. No.

Q. Does it appear in the cal mix IRMS?

A. No.

Q. It does, however, appear in the cal mix acetate, correct?

A. Yes.

Q. And it does, of course, appear in

all the sample fractions: the blank, the sample, the blank, the sample, the blank, the sample, and the last cal mix acetate, correct?

A.   Yes.

Q.   And the cal mix acetate contains four acetylated steroids, and I'm going to point to -- this is USADA 354. It's a document we've all seen many times before. You recognize this, right?

A.   Yes.

Q.   And it's 5-alpha andro AC, and I'm going to call this etio AC, and 5-beta Andro diacetate, and 11-ketoetio AC, right?

A.   11-ketoetio.

Q.   I'm sorry. 11-ketoetio.

A.   Right.

Q.   Now, do you remember -- bear with me for a minute. Do you remember USADA 351?

A.   Yes.

Q.   And do you remember this highlighted figure right here minus 31.08. Can you tell me which fraction that appeared in?

A.   In the Fraction 1 of the sample.

Q.   Fraction 1, right up here. Correct?

A.   Yes.

Q.   And that value, minus 31.08, is out of the measurement of error, correct?

THE INTERPRETER: I didn't hear.

Q. It's out of the measurement of error. Correct?

A. Yes.

Q. Now, if you go down here, there's another one at minus 31.54.

Do you see that?

A. Yes.

Q. That is out of the measurement of error for Fraction F3, right?

A. When you're talking about being out of the interval of error -- measure of error,

are we talking -- we're talking about what is applied for the mix cal acetate, right?

Q. No. I am asking you about the measurement of error applied to the ability of the instrument to properly quantify the isotopic value of the 5-alpha AC in a solvent?

THE INTERPRETER: In a solvent?

Q. In a solvent. Yeah.

A. Yes, that criteria are only applied for the mix cal acetate.

Q. Let me ask you this: Let me show you this. We'll go back to 354.

Show me on this form where it says it only is applied to the value in an acetate.

THE INTERPRETER: In a what?

Q. In the mix cal acetate.

Show me where it says that.

A. Well, I see the calibration of the instrument, the values obtained, and the interval -- the value -- of the value, of the acceptable interval of value.

Q. So what you're saying is that the instrument --

THE INTERPRETER: The interval of acceptable values. Thank you.

Q. You know what? Why don't I go on and do one thing, and then I'll come back, and we'll get them all out at the same time.

This is the IRMS Sample A. Do you see this minus 31.64 is out of the measurement of error for the Fraction F1, correct?

A. Yes.

Q. And you see that the value here is out of the measurement of error for the Fraction F2, correct?

A. Yes.

Q. And your testimony is it doesn't matter if it's out of the measurement of error in the actual samples, correct?

A. Yes.

Q. Okay. Your testimony is that the measurement of error only applies to the cal mix acetate.

A. To the cal acetate.

Q. To the cal mix acetate.

A. Yes.

MR. YOUNG: And are you talking about for the internal standard?

MR. SUH: For the internal standard 5-alpha AC.

Q. Correct?

A. Yes.

Q. And yesterday when you were talking about it, you said that the cal mix acetate was different than the blank and the actual samples because there was matrix interference around the 5-alpha AC peak in the blank and in the actual samples, correct?

A. Yes. I said that at the start of the chromatography, there was a matrix interference that you find at the beginning and the start of the chromatograph -- the chromatogram.

Q. The chromatogram.

THE INTERPRETER: Chromatogram. Thank you.

Q. So in other words, it's not important that the 5-alpha AC gets measured accurately in the very samples that have resulted in the adverse analytic finding here, because there was matrix interference, correct?

A. Yes.

Q. Let's talk about what cal mix -- I'm

going to just draw this, because we didn't have time to make it an exhibit. Make a line right

down the middle.

And I'm going to put on this side cal mix acetate, and on this side I'm going to put the blank F1, sample F1, with a blank F2, sample F2, a blank F3, sample F3. Okay?

A. All right.

Q. Now, the internal standard 5-alpha AC is added to each one of these, correct?

A. Yes.

Q. And you're saying that for all of these, it does not matter whether or not the 5-alpha AC is properly quantified in terms of its isotopic value, correct --

A. Yes.

Q. -- because of its matrix interference?

A. Yes.

Q. Okay. Now, however, it's only important that it be properly, in terms of its isotopic value, be measured in the cal mix acetate, correct?

A. Yes.

Q. Now, the cal mix acetate, you would agree with me, is a mixture of four steroid acetates of known concentration and isotopic value in a solvent, correct?

A. Yes.

Q. Therefore, it is a clean matrix, right?

A. Yes.

Q. A clean matrix is often called a clean matrix because the chromatograms produced in a clean matrix are -- well, are clean. They're without coeluting peaks, without a lot of the problems that we've seen in some of the samples here, correct?

A. Yes.

Q. Isn't it true -- wouldn't you agree with me, it's much easier to get an accurate isotopic reading in a clean matrix than a dirty matrix?

A. Yes.

Q. And a dirty matrix is a matrix that has, within it, a lot of compounds, correct?

THE REPORTER: A lot of what?

Q. Compounds. Correct?

A. Yes.

Q. And these compounds cause interference, matrix interference, in their chromatogram if we don't prepare the sample

properly, correct?

A. Would you repeat it?

MR. SUH: I probably will never be able to do that again. Please have that read back.

(Reporter complies.)

A. Yes.

Q. And wouldn't you agree with me that urine is a very dirty matrix?

A. Yes.

Q. All right. Okay. Let me show you a chromatogram. All right. I'm going to show you USADA 164. And I'd like you to focus -- the peak of interest I'd like you to focus on is that one right there.

MR. BRUNET: Just a moment.

Q. USADA 164, Exhibit 24.

MR. BRUNET: Thank you.

Q. Do you have it in front of you?

A. Not yet.

Q. Do you have it in front of you?

A. Yes.

Q. Do you see this peak right here, this peak of interest? How many chromatograms have you looked at in the span of your career?

A. I would say off the top of my head, perhaps a thousand or more.

Q. And you would say you know the difference between a peak of interest that has matrix interference and a peak of interest that doesn't have matrix interference? Correct?

THE INTERPRETER: I'm sorry. Can you give a little pause between -- I got the first part; I didn't get the second.

Q. A peak of interest that has matrix interference and a peak of interest that does not have matrix interference.

THE INTERPRETER: Let me try again.

Can you read that back?

(Reporter complies.)

A. Yes.

Q. Can you look at this peak and tell me whether or not you see matrix interference there?

A. To see if I have any matrix interference, it's difficult to look at this chromatogram. I would have to see the 45, 44 report.

MR. BRUNET: Is it a report or a ratio?

THE INTERPRETER: Or ratio. I'm sorry.

A. It's ratio.

MR. BRUNET: In French, it's the same word.

THE INTERPRETER: Thank you.

Q. All right. So your testimony is

that in order to know whether or not this has a peak -- this peak of interest has matrix interference, we would have to have the Mass 44, Mass 45 graph, correct?

A. I can't answer yes. I can't -- yes, I cannot give you an answer by looking at this chromatogram there.

Q. Because she needs what?

A. I need to look at the correspondence of the traceability 45, 44 -- of the ratio.

THE INTERPRETER: I'm sorry.

A. I need to look at the ratio, 45, 44.

Mr. Suh: Mr. Chair, I would like to point out for the record, that the very document that the witness has just said that she would need to have in order to determine whether or not there's matrix interference here, which is, of course, what we would need to establish

matrix interference to the rest of the chromatogram further on down, we never received. We don't have those documents, and we asked for them.

So, because we didn't get those documents, we're going to stop the cross right now with the right to recall this witness.

MR. BARNETT: And we will point out for the record that, as the Panel well knows, the discovery discussions in this case were quite lengthy and ended with Respondent agreeing that they had everything they had with the Panel's orders and that they needed the electronic deals, which were reprocessed, which we heard about, and we all know the results of those.

MR. SUH: Just for clarity sake, we have never, ever said we have had everything we needed to have. Never. And --

MR. BRUNET: Mr. Suh --

MR. SUH: -- we have proof of it today because that's what the witness just told us. It's not what we said. The witness just told us, to accurately quantify this, the witness told us, we need additional documents,

which we never got. And we never, ever said we got everything.

MR. BRUNET: Madam interpreter, we're not examining the witness, so it's not necessary to translate. Thank you.

Mr. Suh, if you can walk me through here, the 45, 44 ratio that you're referring to -- or that Ms. Mongongu is referring to, could you walk us through this?

MR. SUH: I'd be happy to.

The issue is -- it's much easier just to explain it than to do it in a question/answer format.

The witness is telling us right now that we can't -- it doesn't matter that you -- that they are inaccurately identifying or quantifying, rather, the isotopic ratio of this internal standard, 5-alpha AC.

The reason why, she says, is because there's matrix interference around this peak. This is the peak I showed her --

We need to turn this on, Todd.

This is the peak I showed her right here.

Now, this is all we ever received.

MR. CAMPBELL: Can she hear?

MR. SUH: Sure, she can hear.

Now, when we looked at the other chromatograms, there is far more matrix interference in the actual peaks of interest, the ones that are actually associated with the isotopic ratios that they've relied on for their adverse analytical finding against Mr. Landis. She's saying you can't rely on this, because it's out of measurement. Because -- because there's so much matrix interference here.

Well, if there's so much matrix interference here, you should see the matrix interference in the other sample. And in fact, as you saw when Dr. Shackleton testified, we showed chromatograms in which there were sloping

-- downward sloping baselines and coeluting peaks and everything else.

This is much cleaner. Okay? But we're told that you can't properly identify this one, this one right here, because there's matrix interference. And so I asked her, and she says, we need a Mass 44, Mass 45 graph, which we would love to have, but we have never received those documents.

An example of that: We received very few of them, but the ones we received, there was one that Dr. Brenna had shown. It's the one that looks -- it kind of looks like this.

Well, you know what? I think -- I think Mr. McLaren may have it. So we never received it. And when we look at these chromatograms, this peak right here, that looks a lot, lot cleaner than the ones that are being used to calculate Mr. Landis' adverse analytical finding, which is what we've been saying all along.

I can point to the discovery request. It was in my letter, Number 13. All documents --

MR. BRUNET: Sorry. Which letter? Your letter dated?

MR. SUH: It's dated January 22nd.

It's what kicked off our many discovery debates: "All documents that relate to the identification of each of the peaks in the IRMS analysis for any sample tested by LNDD."

And now, in the middle of this arbitration, we hear she can't even opine that

that's a good or bad chromatogram, even though this one, by the way, is the one that's out of standard. This is the one out of the measurement of error. One of the ones we just covered, it's out of the measurement of error. And she's saying this because there is matrix interference here. If there is matrix interference here, there is absolutely matrix interference in the peaks of interest. Absolutely. That's what we've been trying to prove.

MR. BRUNET: Mr. Barnett or Mr. Young?

MR. BARNETT: And it will probably be a two-part response, but let me deal with the procedural piece.

Again, as the Panel knows, Respondent had every opportunity, with the Panel's assistance, to continue to discuss discovery, and we worked out resolutions wherever possible, and the Panel sent out a March 30th order, which they had an opportunity to comment on.

And in response to C13 -- Mr. Suh will correct me if I'm wrong -- is, I believe,

the one he was pointing to, the Panel said, "The Panel considers that this request will be resolved upon production of scans for all the Respondent's Tour de France 2006 samples."

MR. YOUNG: And let me finish the response.

The first part is, you recall that the witness said that the purpose of this internal standard was for identification, not quantification.

One of the explanations -- I mean, that was the purpose. She then said quantification could be difficult because it was at that end of the spectrum where there is frequently matrix interference.

When we look at this particular chromatogram, which is at 164, what we're hearing is we have never been provided the Mass 44, Mass 45 ratio by which she said she would like to identify -- or to identify whether there's matrix interference. And that's not true, because that's what they got when the electronic data files were reprocessed.

If you go to Page 73 of the electronic data file process, and I'm doing this on the fly, and when we take a break, if it turns out I've got the wrong page, then I'll let you know, but I think it's Page 73 of the electronic data file package that was produced by Dr. Botré.

There -- this is the ion trace for Page 164. This is the original electronic data. The peaks are the original electronic data. The numbers are the numbers that were arrived at in reprocessing.

So if Counsel wants to ask the witness whether she thinks that there was peak interference, the -- based on the Mass 44, Mass 45 ratio, it's right here, which they've had since Dr. Botré produced his report.

MR. BARNETT: And I'm sorry. The final comment: Because we weren't done with our chronology of the Panel's attempts to resolve discovery, was, after the March 30th order, Respondent and USADA were given an opportunity to comment. And again, the Panel said they would consider it resolved. The Respondent responded on April 5th, 2007, in a letter by Mr. Suh pointing out any remaining discovery issues that they had, and the Panel will note that, on that day, he did not raise any response to the Panel's C13 resolution.

MR. SUH: I have a couple of responses to this.

Number 1, I just turned to the ISL which says, "In general, the records should be such that in the absence of the analyst, another competent analyst could evaluate what tests had been performed and interpret the data." And that the records that we have we don't feel are complete in this regard.

And if we want to take a break and work this out, we can. Given that it's 3:25, I would suggest that we have an opportunity to confer.

MR. BRUNET: Yes. But Mr. Suh, what you're pointing to, is that, in your opinion at this point, you may be -- I don't know if you've been surprised by this answer today from the witness -- but is this what you would consider to be an isolated document that you would be requesting, or would that generate other documents that may have not been addressed as part of the discovery process?

MR. SUH: We're not sure right now.

MR. MC LAREN: But you think you might have it. You're not sure?

MR. SUH: Some of them --

MR. MC LAREN: You need to confer.

MR. SUH: We know that there are some of these, at least in their complete form, that we don't have. We know that.

MR. MC LAREN: Why don't you confer and get to the bottom of it, and get back to us with what the problem is.

MR. BRUNET: And just so we understand better, would they be -- at this point in time, would it be understood to be restricted to the 45, 44 Mass ratio, or would it extend to other documents?

MR. SUH: The 44, 45 Mass ratio does not -- first and foremost, it deals with identification, and not quantification, so the matrix interference argument we think in and of itself here is not entirely applicable, in any case.

But I'm happy to meet and confer with them. We have a couple of people that have just joined us, so we'd be happy to do that.

MR. YOUNG: And we agree with the

comment that the internal standard has to do with identification, and not quantification, and --

MR. SUH: That's not what I said. That is not what I said.

MR. YOUNG: And the electronic data files are what both sides got, and so I guess if they want to say there was something missing in what Dr. Botré provided, this is all we have too.

MR. SUH: What's important to note is we don't have the electronic data files. We only have what was printed from them. They might very well be in the electronic data files that USADA's so careful about, but we may not have them ourselves.

MR. BRUNET: Let's pause for a recess, and let's have a recess and come and get us in our room when you're finished discussing, so maybe 15 minutes or 20 minutes. Take your time.

MR. BARNETT: If we can clarify, is it them just discussing among themselves whether they have the documents, because that sounds to be the first step?

MR. BRUNET: Well, it's my understanding that they would be conferring among themselves and then with you.

MR. BARNETT: Okay. Thank you, Chairman.

(Recess taken from 3:30 to 3:50 p.m.)

MR. BRUNET: Did we lose our

interpreter?

MR. SUH: Enough was enough?

MR. BRUNET: Let's just wait for her.

THE INTERPRETER: I'm not trying --

MR. BRUNET: When I said you were important yesterday, I wasn't kidding.

MR. SUH: Mr. Chair, we've met and conferred with the other side, and our position still stands. We do not have the documents which would -- which are the documents that the witness is truly referring to. We have limited Mass 44, 45 documents. Those are not the ones, however, that allow the kind of analysis she's -- analysis she's talking about. They are not the ones that we had wanted in discovery.

Originally -- a little background

would be helpful. The electronic data files do, in fact, allow the kind of views that this witness is talking about because the electronic files would allow you to zoom in and blow up and look at the chromatograms.

The ones we have -- I can show you some examples -- the ones that we have that we looked at have no resolving power at all.

To give you one example.

MR. BRUNET: Mr. Suh, those chromatograms that you've been provided through the EDF have the resolving power in the opinion of the lab technician. Isn't that what you wanted to show her?

MR. SUH: I'm sorry?

MR. BRUNET: When you were cross-examining the witness, she said she did not have the document, the Mass 44, 45 document, in order to provide her opinion. If she was provided with that document now, wouldn't you -- wouldn't she be able to make that assessment herself?

MR. SUH: This document doesn't have the kind of resolving power -- of course, I mean, if you look at this document, and you

compare it to, for example, the one that Dr. Brenna had, which is far more detailed. I believe Mr. McLaren has it up in front there.

MR. MC LAREN: I have it in front of me, yes.

MR. SUH: It is a -- yes. It is a different -- if it's easy to see here, but this thing is, you know, about half or a quarter-inch long. This does not provide the kind of resolution that is required to do this analysis.

MR. BRUNET: And that's your opinion as counsel. But if you were to show that document to the witness, wouldn't that be her opinion that would be -- that would --

MR. SUH: We would be happy to show it to the witness.

MR. YOUNG: May I address this issue?

MR. BRUNET: Yes, please, Mr. Young.

MR. YOUNG: We've just heard from Mr. Suh that they never got these documents. In fact, that's absolutely not true. They got the electronic data file documents with Dr. Botré's report.

The Panel could not have been more

clear to the parties that if they wanted to give Dr. Botré instructions on what he should do when he was processing the electronic data files, they should do that; and then when Dr. Botré and the experts were all in Paris together, he was accepting instructions from them there.

The truth is, it isn't that they didn't get the documents that represent the electronic -- from the electronic data files, is they're now saying, Well, I guess we got the documents, but they're not enlarged the way we want.

Simple fact. If they wanted an enlarged Mass 44, Mass 45 trace, they could have asked Dr. Botré to have that printed in that format, and I guess if they had that, they'd be happy now.

But you can ask Dr. Botré. He was more than willing to reprocess the data when they were in Paris any way that Respondent's expert wanted.

If they had particular problems with these handful of internal standards that they now have spent so much time talking about, they've had the doc packs with that data in it

for many, many, many months. They could have asked for those particular ion traces to be enlarged, or they could have asked for all of the ion traces to be enlarged.

If you note that in the ion traces from the B Sample, those are, in fact, larger than the ones you have in the A Sample. That's where the picture that Dr. Brenna showed you yesterday came from: The B Sample.

Simply put, if they wanted an enlarged version so that they could look at every single ion trace with every single peak, the Panel gave them every opportunity in the world to ask Dr. Botré to have the data processed that way, and they would have in their hands what they're now making such a fuss about.

MR. SUH: Let me -- I very much need to respond to that. Because the process is not nearly as simple as Mr. Young describes. The process of pulling out the actual peaks is a very time-consuming one. Dr. Davis would have had to go in and look at the peaks that had the problems that we were trying to identify. He would have taken weeks.

We got this data on April 5th just

barely in the amount of time necessary to prepare. And we didn't have the opportunity --

MR. WEISS: May 5th.

MR. SUH: Excuse me, May 5th. We didn't have the opportunity to go through weeks and weeks of analysis to go through this. We simply didn't. We had asked for these electronic data files in February -- on February 22nd, and we were told that we could not have the electronic data files, because USADA claimed that we would tamper with them. And we didn't get this -- we were -- we were allowed to get written instructions, but we don't have a crystal ball as to what the data's going to look like. We don't know --

See, these chromatograms that we have; there are many chromatograms; there are many peaks. It's, as we know, it is a very complicated process.

MR. CAMPBELL: Mr. Suh, can I ask you a question? I hate to interrupt.

As I saw the situation, it looks like you asked the question of the witness, and the response you got back surprised you; is that correct?

MR. SUH: No. We believed all along that the internal standards -- that there is no justification for the internal standards being out of the measurement of error in the samples and the blanks; that there is nothing anywhere that says that internal standards should be in measurement in a pure acetate matrix but out of measurement in the very samples that you are trying to measure.

MR. CAMPBELL: Yeah, but what I thought was the issue that was a surprise you -- let me see if I can -- she stated that there was matrix interference. And you asked, Well, how do you know there was matrix interference? How can you tell me there's matrix interference? And her response was, Well, I have to look at another document.

And I don't think you anticipated that response that she'd have to look at another document to talk about the matrix interference. Or maybe you didn't anticipate that she would have matrix interference. I'm just trying to figure out if that was the case.

MR. SUH: I am surprised that she's referring to a document of the kind and nature that we do not have. That is the surprise that I have: that the kind of document that we were trying to get which is basically the electronic files, which would have allowed us to take a look at the peaks and the peaks of interest, that she would now be referring to those at this stage of the game.

MR. BARNETT: Wait. For the record, I need to respond to that. What she referred to can be found in the GDC exhibits at GDC 00942. That's what Mr. Suh told the Panel that he does not have in their exhibits. What he's now asking is that they be provided the electronic data files.

MR. BRUNET: I'm sorry, GDC 00--

MR. BARNETT: -942.

MR. BRUNET: Can we take a moment to look at that?

MR. MC LAREN: I thought that you were having discussions to resolve this between you. You're telling me that you now have them? They have the documentation?

MR. BARNETT: Yes, they do, and that was acknowledged in our discussion.

MR. SUH: Again --

MR. BARNETT: The 44, 45 ratio

document is GDC 00942.

MR. SUH: We do not have the document in the way that it's referenced by this witness. This witness is talking about a document that provides resolving power as to the issue of whether or not there's matrix interference, in her opinion, of that particular peak of interest, the 5-alpha AC.

We have been asking for the ability to get that kind of document, but instead, what we get is documents which provide none of that resolving power. That is what we find striking about this.

MR. BRUNET: Mr. Suh, let's look at GDC 00942.

MR. SUH: Yes.

MR. BRUNET: Maybe I need some assistance here.

The bottom graph of that -- on that page, with the peaks minus 29.86, minus 24.97, that bottom graph, was that provided in the original lab pack?

MR. SUH: Yes. That's the one we were showing, the big version of the one we were

showing. It's the big version of the one we were showing.

MR. BRUNET: Now, my understanding is that the top graph on that same page was not provided to you in the lab pack, or was it?

MR. SUH: This is a document that was provided to us as part of the electronic data file run.

MR. BRUNET: I understand.

Let's focus on the bottom -- on the bottom graph. These results were provided to you in the original run, with the original lab pack?

MR. SUH: Actually --

MR. BRUNET: And I understand that the numbers may not be the same. And that's the function of the reprocessing EDF; you won't get the same numbers.

MR. SUH: Well, it's our position we should get the same numbers.

MR. BRUNET: Okay. Well, I don't want to preempt your argumentation, but you're saying that scientifically you should -- upon rerunning of the EDF, you should get exactly the same numbers?

MR. SUH: It is our position that in rerunning the EDF -- well, there are several things to keep in mind. The first thing is, is that because this process is being done manually, interjecting the judgment of the technician, that we are not getting reproducibility of data. And yes, we should, if it's being done in a consistent and scientific manner, yes. So, yes; the answer to that question's yes.

I do think -- I mean, we don't have -- I guess the short answer to this question, is, no, we did not receive this bottom -- this bottom chromatogram as part of the original document package because it is the reprocessed chromatogram of what is USADA 164.

MR. BRUNET: I apologize, as well. And we may hear some different opinions as the days go by on whether or not these numbers would turn out to be the same upon the reprocessed.

Just so that we're clear, so you did get the results which are not the same, but on the bottom graph, but what you were provided with, in addition, was the top graph upon reprocessing the EDF.

MR. SUH: Right.

MR. BRUNET: I think what I need to understand is that when those EDFs were reprocessed at the Paris lab, your expert was there, correct?

MR. SUH: Yes.

MR. BRUNET: Okay. Which, what you're saying is that this top graph here is not perhaps enhanced enough to allow you or the lab technician to provide an opinion.

MR. SUH: Can you wait one second?
Let me just check one thing.

MR. CAMPBELL: Whose time is this?
Is this the Panel's time?

MR. SUH: I'm sorry. We received this top graph in the EDF packet. Our concern is this: Is that this graph, as it was provided to us, there was no adequate amount of time to generate the kinds of graphs that we needed to look at these chromatograms and to do the analysis that the witness is talking about.

We simply can't respond when the witness says, I need to look at the Mass 44, 45. This does not provide -- it would be like --

MR. BRUNET: Sorry. Point of

clarification: When you said we did not have enough time, are you referring to the time from which you received those graphs to today? Are you referring to the time, the actual time, that the analysis -- the reanalysis at the EDFs took place in Paris? And, if so, please advise the Panel, because we don't have that information that you were restricted in any way timewise after the reprocessing of the EDFs.

MR. SUH: Thank you, Mr. Chair, yes.

The time restriction really arose out of the time from which we began the EDF processing -- process to the time of the start of this trial.

In other words, we got this data on May 5th, and there was -- in order to do the analysis that we're talking about here, would have taken us several weeks to do, which would have put us right on top or in the middle of this arbitration.

MR. BRUNET: But this graph -- the top graph that was generated through the processing of the EDF, my understanding is that it was generated on site in Paris. It was not a gen- -- a post -- a generation of post analysis.

These were generated on site?

MR. SUH: Yes.

MR. BRUNET: But this doc- -- this top graph that you're telling us is that this top graph is not precise enough; so if you would have had six months more to prepare, it wouldn't have helped you.

MR. SUH: No. No, no. If we had the EDF, if we had the ability to give those instructions with the EDF, you can look at this in whatever scale.

For example, the one that Mr. McLaren has is looked at in greater detail. The software allows you to zoom into these and to look at them in a way that makes -- that is meaningful.

MR. BRUNET: And we understand each other. And my question that I asked you a few minutes ago was, is there any indication that -- your expert was present on site in Paris. Is there any indication that he was restricted from getting a more precise section of this top graph?

MR. SUH: The restriction really arose from the amount of time that we had to

make this -- we had asked for the ability to do this, Mr. Chair, but there simply, at this juncture --

MR. BRUNET: And it was resolved through the appointment of a Panel-appointed expert who was there at the disposal of both parties, at the service of both parties, through the reprocessing of the EDF, and through the Panel's order, was to overview the reprocessing of the EDF at all times and maintain possession of the EDF at all times. Which has happened.

MR. BARNETT: Can I jump in here? Mr. Suh, could we resolve this issue by having you go to the UCLA lab and looking at the data? Do they have a little machine that -- we can do it here? We can do it. Actually, Dr. Davis -- Dr. Simon Davis is here with us in the courtroom, and he actually brought with him an instrument, the software that runs the electronic data files.

MR. CAMPBELL: Can we print it out?

DR. DAVIS: It's in the machine.

MR. CAMPBELL: It takes weeks?

DR. DAVIS: We could --

MR. BRUNET: Do you want to identify

yourself.

DR. DAVIS: I'm Simon Davis.

MR. BARNETT: Are we going to swear -- are we going to swear him in for this piece, Mr. Brunet?

MR. BRUNET: Well, if we're calling him as a witness, certainly. Mr. Suh, do you want to bring a witness to testify?

MR. BARNETT: My point is we're starting to hear from the gallery on an issue that we've been resolving together in a professional way for months and months. And what this boils down to is they're not happy with the instructions they gave to Dr. Botré when he was quite amenable. If there's going to be a witness to be called on this issue, it should be Dr. Botré.

MR. CAMPBELL: Well, I still want to hear the process, whether you swear him in or not. Swear him in, and then I want to hear if it's possible to get you this information in a reasonable amount of time. That's what I want to hear.

MR. BRUNET: Maybe we can get to that later once I hear from Mr. Young, and if we

could get this resolved between counsel, I mean, maybe that's preferable at this point in time.

MR. YOUNG: The piece of what Mr. Suh just said that I would react most strongly to is the suggestion that Dr. Davis couldn't have asked for this while he was in Paris because it would take weeks and weeks and weeks.

In fact, it wouldn't have taken weeks and weeks and weeks. That's a chromatogram of one of the group of A samples. And let me show you a chromatogram of one of the group of B samples.

It's GDC 00988. We had a process that we went through where everyone went to a great deal of effort, the Panel appointed its expert, everybody went to Paris, they had a chance to have the electronic data files reprocessed any way they wanted. If Dr. Davis wanted the As to be as big as the Bs, he could have asked for it. If he wanted them to be bigger than the Bs, he could have asked for it.

It makes absolutely no sense now, on the fly, to be having someone start again and start blowing up, on a new instrument, this data.

MR. CAMPBELL: Mr. Young, here's my problem with it. And maybe I don't see the thing accurately.

The need for this particular piece of data came about because of a response by a witness.

Now, if that's the case, you're saying that Mr. Suh would have to be reading the future to figure out if he's going to get this response by the witness that he got today.

MR. YOUNG: All I'm saying is that if he wanted an enlarged version of the Mass 44, Mass 45 trace, he had -- his expert had every opportunity to get it.

If the witness says I can look at it, and resolve it, that's fine. If the witness says, I can look at that, and can't resolve it, that's fine too. That's the end of her testimony.

MR. BARNETT: And for the record, Mr. Campbell, and to answer your question, Mr. Suh confirmed that he was not surprised by that response. And, certainly, if their expert is going to -- you know, Mr. Davis would probably testify that he wanted these all along. This still goes back to the February 22nd, 23rd hearing.

And for the Panel's cite and for the record, where C13, the requested issue, is discussed is Page 124, line 16 through Page 125, line 3. And it supports the Panel's order on that point.

MR. SUH: Just -- and I don't want to belabor this point. We spent enough time on this. But just to show you exactly why -- the chromatogram that Mr. Young used as an example is a wonderful illustration of the problem, because the peak, which is the internal standard right here, at retention time, about 8, say 30 or 40, you will see is not entirely visible in the Mass 44, Mass 45.

And to the extent -- perhaps, I misunderstood Mr. Campbell's questions as it applied to the answer to this particular Mass 44, Mass 45. We cannot predict everything anyone would ever say about this -- about one particular part of these peaks, which is exactly why the thought that we would have somehow to forecast each and every witness's potential piece of testimony on this was simply not

reasonable, and which is why it would take weeks.

In other words, we would have to blow up every single one of these particular peaks of interest. That's the point. And I'm sorry if it wasn't clear what I was intending at the start of this. But at this juncture we are where we are. We rest with this witness, and we turn her over to redirect.

MR. BRUNET: Thank you, Mr. Suh.

Mr. Young, would you like five minutes?

MR. YOUNG: That would be wonderful. Thank you very much.

MR. BRUNET: We'll take a short recess for five minutes.

(Brief recess taken from 4:20 p.m. to 4:45 p.m.)

MR. BRUNET: Welcome back.

Mr. Young. You may proceed.

MR. YOUNG: Thank you.

EXAMINATION

BY MR. YOUNG:

Q. Ms. Mongongu, we talked during your cross-examination about the 17th Stage Tour

sample and then also about the other Tour samples that were analyzed in April.

A. Yes.

Q. At the time that you were doing the analysis of 995474 --

THE INTERPRETER: I'm sorry.

Q. -- 995474 from the 17th Stage in the A Sample, did you have any way of knowing whether that sample belonged to Mr. Landis?

A. No.

Q. Now, in April when you and Claire Frelat were analyzing ten samples; is that correct?

A. Yes, that's right.

Q. Did you know that seven of those ten samples belonged to Mr. Landis?

A. Yes.

Q. But did you know which of those ten samples were Mr. Landis'?

A. I'm not certain I understood.

THE INTERPRETER: (Interpreting.)

Q. I'll ask it again.

THE INTERPRETER: Okay.

Q. In April, you had ten samples, correct?

A. Yes.

Q. Did you know which of those ten samples belonged to Mr. Landis?

A. No.

Q. This is Page USADA 360. This is the mix cal acetate that Mr. Suh spent so much time asking you about.

Do you remember this one?

A. Yes, I remember.

Q. And his question was what happened between the acquisition time of 12:24, and the fact that this sample takes 45 minutes to run, and the start of the analysis of the blank urines and the athletes' sample?

THE INTERPRETER: The start of the analysis of the what?

Q. The blank urines and the athletes' sample?

A. Yes.

Q. Take a look at USADA 302.

A. That's fine.

Q. Now, this is the B Sample, correct?

A. Yes.

Q. And Ms. Frelat was the person responsible for preparing the B Sample and

running the B Sample.

A. Yes.

Q. And in this line, what does it say that Ms. Frelat was doing?

A. The first line?

Q. Yes, right here. "Show reprise par hexane."

A. Per the 4th of August of 2006, Claire Frelat did a rerun -- no, a dissolution of an exam at 16:08.

Q. And to prepare a sample for IRMS

analysis, is the normal step that you take the dry residue of the sample and you dissolve it in hexane?

A. Yes, that's correct.

Q. And that was at 16:58.

A. Yes.

Q. And then what happens at 1700?

A. At 1700 hours, she starts the injections at GC-C-IRMS.

Q. And this is -- look at USADA Exhibit 347.

And is that consistent with the instrument acquisition time for that sample at 17:03?

A. Yes.

Q. Now, you've talked about adding an internal standard to the blank urines and the athletes' sample for the analytical process?

A. Yes.

Q. Why do you add an internal standard to the blank urine and the athlete's sample?

A. The internal standard allows us to calculate the relative retention time of the molecules analyzed.

Q. Is that to make sure that you're looking at the right peaks?

A. Absolutely, yes.

Q. And do you use that internal

standard for any delta value quantitative purpose?

A. No.

Q. Every day before you start to run athlete samples on the IRMS, do you run pulses of CO2 through the instrument?

A. Yes.

Q. And do you do that to make sure the instrument is stable?

A. Yes, that's right.

Q. And if there is a problem with the

instrument's stability when you do that, do you go ahead and run the samples?

A. No.

Q. You talked about meeting with Pasquel Parmentier?

A. Yes.

Q. And you talked about the training that he gave?

A. Yes.

Q. Did he talk to you about acceptable limits of operating pressure for the instrument?

A. Yes.

Q. And what did he tell you?

A. He -- he told me that when the pressure goes above 6, increases -- 6 ten power, ten to the minus 6 --

Q. 6 times 10 to the minus 6?

THE INTERPRETER: 6 times 10 to the minus 6. Thank you.

A. -- then I have a problem with my instrument.

Q. Did he tell you that it was okay to operate the instrument below that pressure?

A. Yes.

Q. And when he would come in for the

routine maintenance of the instrument, would he leave the instrument set at any particular pressure?

A. Yes, he'd already left the instrument, a pressure that was equal to 5.5 or 5.6 times 10 --

DR. BOTRÉ: Minus 6.

THE INTERPRETER: 10 minus 6.

Q. And would he sometimes leave the instrument set at a lower pressure too?

A. Yes.

Q. You talked about when you ran the samples on April 16th using the second IsoPrime instrument with MicroMass software.

A. Yes.

Q. When was that -- and you said that was acquired sometime in 2005.

A. Yes.

Q. When was the second instrument put into operation?

A. When did it arrive?

Q. No. When did you start using this to analyze, to analyze samples?

A. After we did the technical verifications on the instrument, but I really

don't remember exactly what the date was.

Q. Would that have been at some point after Mr. Landis' A and B samples were analyzed?

A. Yes.

Q. When Claire Frelat was preparing the B sample for analysis, do you recall whether you were in the same room?

A. Yes. At a certain point, I was with -- with the observer, the expert who'd been sent by Mr. Landis.

Q. And when Claire Frelat was doing the analysis on the instrument, were you there in the room as well?

THE INTERPRETER: When she did the analysis on the instrument --

Q. Were you there in the room as well?

A. Yes.

Q. This is -- could you go to Exhibit USADA 253, please.

I'm just going to use this. Thanks. No, I want this.

So is Room 103 within the controlled area of the laboratory where you can't go unless you're escorted by somebody from the laboratory?

A. Yes, that's correct.

Q. And I think you said that was behind three locked doors?

A. Yes.

Q. And is Room 104 also within that controlled area?

A. That's correct, yes.

Q. And is Freezer 1 also within that controlled area?

A. Yes.

Q. And I believe you said that Esther Cerpolini had custody of the A Sample bottle in Room 103 where she was preparing T/E aliquots.

A. Yes.

Q. And is Room 103 where Esther always prepares T/E aliquots ?

A. Yes.

Q. And is that where you would always go to get a sample for IRMS aliquots?

A. Yes.

Q. And is that where you would always put the sample back after you're done with IRMS aliquot?

A. Yes.

MR. YOUNG: I have no further questions.

MR. BRUNET: Thank you, Mr. Young.

It's now 5:00. Mr. Suh, do you still have questions for the witness?

MR. SUH: Yes, just very briefly.

EXAMINATION

BY MR. SUH:

Q. A few questions, Ms. Mongongu.

Do you recognize this chromatogram which is LNDD 1749, which is Exhibit 110?

MR. YOUNG: Are we dealing with any issues of -- this is obviously beyond the redirect.

MR. SUH: No, it's not.

MR. YOUNG: Okay.

MR. SUH: It's within the scope of redirect.

Q. (By Mr. Suh) Do you recognize this chromatogram?

A. What number, please?

Q. Do you recognize this chromatogram as being --

THE INTERPRETER: I'm sorry, counsel. She said what number.

Q. Sorry. LNDD 1749?

MR. YOUNG: What exhibit is it in?

MR. SUH: LN- -- it's Exhibit 110.

Q. Do you recognize -- just a question while you're looking for it. The question is very simple: Do you recognize this as a chromatogram?

A. Yes.

Q. Which is the kind of chromatogram produced by the IsoPrime 2?

A. Yes.

Q. Okay. LNDD 1748, the preceding page. Do you recognize this as the report which is produced by the IsoPrime 2 which matches the chromatogram you just saw?

A. Yes.

Q. And do you see that the acquisition date on it for the information is October 1, 2005?

A. Yes.

Q. And that was prior to the time --

MR. BRUNET: Mr. Suh, I don't see October 1. I see October 10.

Q. Excuse me. October 10, 2005. Excuse me.

Thank you, Mr. Chair.

Do you see that?

A. Yes.

Q. And that date is prior to the time of the testing of Mr. Landis' sample, correct?

A. Yes.

MR. SUH: Thank you. No further questions.

MR. BRUNET: Well, thank you very much, Counsels, for finishing this at 5:05.

I understand, Ms. Mongongu, you're free to go back home.

Oh, I'm sorry. My colleague, Mr. Campbell has a few questions for the witness. Not so fast.

EXAMINATION

BY MR. CAMPBELL:

Q. Sorry to keep you guys here late.

I don't know if anybody has USADA -- I think it was the last screen, 235 -- 0253, USADA 0253?

Ms. Mongongu, I just want to ask you a question regarding your testimony earlier about this document.

If we look at the entry, which is number 49 --

THE INTERPRETER: I'm sorry. Excuse

me, Counsel. I don't think she has it.

Q. Oh, I was going with the screen.

I wasn't clear on your testimony. Did you say that you gave this file to Esther after you did the -- what was it -- aliquot?

A. This document here?

Q. Yes, this document. You were

testifying about this document.

A. Yes.

Q. And did I understand you correctly to say that when you gave it to her, she did a density test and a pH test?

A. Yes. I gave her the bottle so that she could perform the density test and the pH test.

Q. And as I look at the next line, it says stockage. Does that mean that she put it in storage?

A. Yes, in storage.

Q. So she did the density test and the T/E test -- pH test, and then put it in storage?

A. Yes.

Q. I think you also testified -- going on to a different subject -- is it true that you're required to understand the peak

international standards for laboratories as part of your job requirement?

A. I'd have to have read those, yes.

Q. Do you have to understand them?

A. Yes.

Q. I want to go to USADA Volume 1 of 2, Number 87. Let's go to Number 88 -- Number 88 of Exhibit 102.

MR. YOUNG: Mr. Campbell, could we have the section cite on that, if you've got it?

MR. CAMPBELL: Volume 1 of 2.

MR. YOUNG: No, just the article.

MR. CAMPBELL: What do you mean?

MR. YOUNG: Oh, I'm sorry. Exhibit 88. Sorry.

MR. CAMPBELL: Yeah.

Q. (By Mr. Campbell) Now, is this the laboratory document package regarding this sample specimen?

A. Yes.

Q. And does this laboratory document specimen identify, in the specimen, the presence of a prohibited substance?

A. I'm looking at the results of the analysis. That is the document. And on Page

LNDD 1106, the conclusion states that the origin of the metabolites of the testosterone was objectified --

THE INTERPRETER: Was proof.

A. -- of an isotopic depletion of 4.1 points per mil, 4, comma, 06 per mil -- oh -- 4.6 per mil, respectively, for the metabolites, and 5-beta androstanediol and 5-alpha androstanediol.

Q. So is this a report from the lab of a presence of a prohibited substance or a marking --

THE INTERPRETER: I'm sorry,

Counsel. I got -- after the "prohibited substance." You can continue.

Q. Prohibited substance or metabolite or a marker?

A. There is an analysis report made on the sample where we find LNDD 1108.

Q. So is this a report of the presence of a prohibited substance or a metabolite or a marker for the existence of the use of a prohibited substance?

A. Yes.

Q. Okay.

What is the International Standard version 24? What is the French version?

MR. BARNETT: I believe it's Exhibit 99.

Q. (By Mr. Campbell) Could you turn to -- well, it's the Section 3.1 code-defined terms.

THE INTERPRETER: Did you say 3.1?

MR. CAMPBELL: Yes.

Q. (By Mr. Campbell) And I'd like you to read the definition of an adverse analytical finding.

(Mr. Brunet spoke in French.)

THE INTERPRETER: Thank you.

A. A report of the laboratory.

MR. BRUNET: Ms. Interpreter,

perhaps you could read from the screen. That's
the English version.

THE INTERPRETER: Oh, thank you,
yes. Oh, there it is.

MR. CAMPBELL: She can read it to
herself.

(Witness complies.)

THE INTERPRETER: Do you want me to
read that for the record?

MR. BRUNET: You can go ahead.

THE INTERPRETER: So, "Adverse
Analytical Finding: A report from a laboratory
or other approved testing entity that identifies
in a specimen the presence of a prohibited
substance or its metabolites or markers,
(including elevated properties of exogenous
substances) or evidence of the use of a
prohibited method."

Q. (By Mr. Campbell) Does this report
that's in Exhibit 88 record an analytical
finding?

A. Yes.

Yes, the results were not -- were
abnormal.

Q. Okay. They were adverse analytical
findings?

A. Yes.

MR. CAMPBELL: Thank you.

MR. BARNETT: An update on witnesses?

MR. BRUNET: Yes, please.

MR. BARNETT: We'll begin the morning at 8:30 with the Panel's approval.

MR. BRUNET: You have it.

MR. BARNETT: And we'll call Claire Frelat, who's been very patient and sequestered all day.

We'll then call Dr. Ayotte, and our witness after Dr. Ayotte is Greg LeMond.

Due to scheduling, I will need to potentially interrupt Dr. Ayotte's testimony in order to get Mr. LeMond on and off in the afternoon.

And I believe I spoke about that with Counsel, and we have no objection.

And I would like to be optimistic and we'll get beyond that, but I'm not sure that we will at this point.

MR. BRUNET: So the schedule tomorrow is 8:30 to 5:00 as agreed between counsel?

MR. SUH: Mr. Chair, two housekeeping issues.

One is, given the number of witnesses that we have gone through, which is not a lot, given the number of days that we have been at it --

MR. BRUNET: But the quality has been good.

MR. SUH: I don't know if that's a compliment or not -- but I hope we might be able to take up the issue of the Saturday day so we can -- because Saturday's when we believe our witnesses will go on, and we'd like to give them a little notice about their travel schedule.

So that's one issue perhaps, that we could take up tomorrow.

And as a housekeeping matter, also, I know we had some time spent on discussing the evidentiary issue and our request simply is that it counts against both sides and not simply against Mr. Landis.

MR. BRUNET: That was also our discussion in our room that it will be -- the discussion we had earlier this afternoon will be applied equally to the parties.

MR. SUH: Thank you very much.

Thank you for your time.

MR. BRUNET: Thank you very much. Have a good day, and we'll see you tomorrow.

(Recessed at 5:25 p.m.)

BEFORE THE AMERICAN ARBITRATION ASSOCIATION
North American Court Of Arbitration For Sport Panel

TRANSCRIPT OF PROCEEDINGS, May 17, 2007

UNITED STATES ANTI-DOPING AGENCY,
Claimant,
vs.
FLOYD LANDIS,
Respondent.

PURSUANT TO NOTICE, the above arbitration hearing was held at Pepperdine University, Department of Law, Malibu, California, May 17, 2007, commencing at 8:20 a.m. before Debra K. Resling, RMR, Certified Realtime Reporter and Notary Public.

AMERICAN ARBITRATION ASSOCIATION PANEL

MR. PATRICE BRUNET, 1010 De la Gauchetiere West, #2260, Montreal, Quebec H3B 2N2, Canada. E-Mail: Pbrunet@brunetavocats.com.

MR. RICHARD H. MC LAREN, Innovative Dispute Resolutions, Ltd., c/o McKenzie Lake Lawyers, LLP, 300 Dundas Street, London, Ontario N6B 1T6, Canada. E-mail: Mclaren@mckenzielake.com.

MR. CHRISTOPHER L. CAMPBELL, Chapman & Intrieri, 2236 Mariner Square Drive, Suite 300, Alameda, CA 94501, United States. E-mail: Ccampbell@chapmanandintrieri.com.

APPEARANCES

MR. RICHARD R. YOUNG, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MR. DANIEL J. DUNN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 1700

Lincoln Street, Suite 4100, Denver, Colorado 80203-4541, (303)866-0365, appeared on behalf of the United States Anti-Doping Agency.

MR. MATTHEW S. BARNETT, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MS. JENNIFER SLOAN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MR. MAURICE M. SUH, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333 South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. DANIEL L. WEISS, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333 South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. HOWARD L. JACOBS, Attorney at Law, from the Law Offices of Howard L. Jacobs, 4210 Lewis Road, Suite 5, Agoura Hills, California 91301, (818)442-0408, appeared on behalf of Floyd Landis.

MR. PAUL SCOTT, Chief Operating Officer, 2160 Century Park East, #2108, (310)203-0354, Los Angeles, California 90067, Agency for Cycling Ethics.

Participants behind Counsel Table: Caroline Hatton, Kathrin Weston, James Padilla; Floyd Landis, Amber Landis, Mr. and Mrs. Paul Landis, William Geoghegan, Arnie Baker, Michael Henson, Brent Kay, Todd Thompson.

Panel Participants: Dr. Francesco Botré, Andreas Zagklis.

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(Commencing Thursday, May 17, 2007 at 8:30 a.m.)

MR. BRUNET: Good morning, everyone. This is the fourth day of the USADA and the Floyd Landis hearing.

Do you have appearances, please?

MR. SUH: Yes, good morning, Mr. Chair. Maurice Suh of Gibson Dunn and Crutcher. With me here at counsel table is Howard Jacobs, Paul Scott, Dan Weiss and Floyd Landis, who is here in person. Thank you.

MR. YOUNG: For USADA, Rich Young, Matt Barnett, Dan Dunn and Jenny Sloan.

MR. DUNN: Mr. Chair, I've been informed that we still don't have our interpreter here, and our first witness is a French witness. I could conduct the examination in English. I prefer to wait a few minutes. I don't know where she is. We just learned that. She's in transit.

MR. BRUNET: Do you have another witness that doesn't need an interpreter that you could proceed with?

MR. BARNETT: The first witness is the witness who has to catch a plane.

MR. BRUNET: Why don't we have a recess. Let me plan -- the Panel planned to have a meeting with counsel regarding the planning of the following days -- and that was the shortest recess I ever called.

MR. MC LAREN: Relax.

MR. BRUNET: On that subject, though, we'll still have that meeting regarding morning recess, regarding the timing, and get a handle on the witnesses and how they are coming.

For the record, the parties have received, by e-mail, the current time that is -- that still -- still remains. After three days of hearings, the counsel for Landis have 15.2

hours remaining, and counsel for USADA has 16 hours remaining until the -- until the 23rd of May.

Mr. Young, would you call your witness, please.

MR. YOUNG: Yes. And if the Panel will recall, yesterday when Ms. Mongongu was being examined about changing the liner on IsoPrime 2 on April 17th, she was asked if we could provide maintenance logs -- the maintenance log for that day.

We had that faxed to us. Here is that maintenance log, and it shows the liner on the IsoPrime was changed on April 17th.

MR. BRUNET: Is this to be understood that -- to be Exhibit 115, Mr. Young?

MR. YOUNG: That is correct.

MR. BRUNET: Thank you.

MR. DUNN: Our next witness is Claire Frelat.

WHEREUPON,

CLAIRE FRELAT,

the witness herein, having been first duly sworn, through the interpreter, to state the whole truth, testified on her oath as follows:

EXAMINATION

BY MR. DUNN:

Q. Good morning, Mrs. Frelat.

A. Good morning.

Q. Could you state your full name, please.

A. Claire Frelat.

Q. Could you speak up?

A. Claire Frelat.

Q. Mrs. Frelat, are you qualified in IRMS analysis?

A. Yes.

Q. On August 3rd and 4th, 2006, did you use IRMS to analyze Mr. Landis' B sample?

A. Yes.

Q. Now, who opened the B bottle?

A. Ruddy Barlagne.

Q. Did he open the bottle in your presence?

A. Yes.

Q. Before he opened it, was the seal intact?

A. Yes.

Q. Now, in performing your IRMS analysis, did you follow LNDD's operating procedure for data reduction?

A. Yes.

Q. Could you please look at the first binder that's in front of you.

We're going to get the witness her glasses.

I'm sorry.

Did you follow LNDD's operating procedures for data reduction in performing your analysis?

THE INTERPRETER: For the what

analysis?

Q. For the IRMS analysis.

A. Yes.

Q. And is that standard procedure reflected on Exhibit 112 at Page 603, LNDD?

A. Yes.

Q. Okay. Now, I'm going to hand you what's been marked, or will be marked, as Exhibit 169?

MR. YOUNG: No, 115.

Q. -- which you haven't seen before today, correct?

A. Correct.

Q. I mean, you haven't seen this morning or in preparation for your testimony?

THE INTERPRETER: I'm sorry. She didn't give an answer.

Q. I'm sorry.

A. No, I haven't seen it yet.

Q. Okay. But you were not here yesterday when Ms. Mongongu testified, correct?

A. That's correct; I was not here.

Q. Okay. She, during her testimony,

made a reference to a maintenance log for the IsoPrime 2.

And I just want you to identify this record and tell me whether -- just tell me what it is.

A. They're the maintenance files of IsoPrime 2 for the month of April 2007.

Q. And along the left-hand column by the days of the month listed, as best you can make out --

A. Yes.

Q. -- go to the second page, please. And it's the second row, which is for April 17th, correct?

A. Yes.

Q. And the next number to the right is 49?

A. Yes.

Q. Whose num- -- whose number is that?

A. That is operator code of Cynthia Mongongu.

Q. Okay. Now, next to 49 are two columns with a check mark.

Okay. Are those check marks the, well, what do you understand them to mark?

A. It shows that Cynthia changed a septum and the liner.

THE REPORTER: A what and a liner?

THE INTERPRETER: Septum.

Q. You can put that document aside. We're done with that.

Okay. If you could, now, get the next document in front of you, which is underneath here.

Okay. Are the delta/delta values that you reported using IRMS on Mr. Landis' B sample contained at Page 352 of Exhibit 25?

A. Yes, those are the delta/delta values.

Q. Would you highlight that table, the second table? And is that the table in which your delta/delta values are reported?

A. Yes.

Q. After you reported these values, did you apply WADA's positivity criteria?

A. Yes.

Q. And did you also apply LNDD's uncertainty factor?

A. Yes.

Q. Would you go to the next section down.

Is what is displayed on your screen

your verification that you did apply WADA's criteria and LNDD's uncertainty factor?

THE INTERPRETER: I'm sorry. What criteria?

Q. WADA's positivity factor.

THE INTERPRETER: And?

Q. And LNDD's uncertainty factor.

A. Yes.

Q. Now, based on --

MR. BRUNET: Excuse me. What page are you at?

Q. We're at Page 352 of Exhibit 25.

I'm sorry?

MR. BRUNET: That's fine. Thanks.

Q. Based on the values that you reported on Page 352 and your application of WADA's positivity criteria and your lab's uncertainty factor, did you determine that Mr. Landis' B sample was positive for exogenous testosterone?

A. Yes.

MR. DUNN: No further questions.

EXAMINATION

BY MR. SUH:

Q. Good morning.

A. Good morning.

Q. How long have you worked at LNDD?

A. Since January of 2001.

Q. And can you tell me what positions

you have held since January of 2001 at LNDD?

A. I was an -- a chemist analyst in the screening area up until February of 2006, and at that time I became a specialized analyst chemist in IRMS.

Q. And what did you do before January 2001 for employment?

A. I was a student.

Q. So working at LNDD was -- was basically your first job, correct?

A. Yes.

Q. And you hadn't had any other jobs since the time you went to LNDD. You went straight through to LNDD, right?

A. Yes.

Q. Can you tell me what training you had at LNDD as it relates to the performance of the IRMS test, the GC/C-IRMS test?

THE INTERPRETER: Of the what?

Q. The GCC, GC/C-IRMS.

Just -- I -- I will now call

"GC/C-IRMS," "IRMS" from here on out.

THE INTERPRETER: That's all right if you want to use it. I had missed that. I apologize.

Q. Gas chromatography combustion isotope ratio mass spectrometry: GC/C-IRMS.

A. Cynthia Mongongu did inform me of

that.

MR. BRUNET: I'm sorry, was that informe or forme?

THE INTERPRETER: Oh, I apologize, but not "informed me," but did -- did "train me."

Q. So all of the training that you had on the performance of the IRMS test came from Ms. Mongongu; is that correct?

A. Yes.

Q. And can you tell me what that training consisted of?

A. Well, she supervised the preparation of the samples. And then she -- and after that, she explained the use and the maintenance of the IsoPrime machine; that is, she showed me how to use it. And then she let me do it; and then, if there was anything that I forgot, she would

correct me.

Q. And did she do this -- this was, in essence, on-the-job training? In other words, you went to work, and, while at work, she explained basically how to perform the test while you were doing your job?

A. Not exactly, no.

Q. Well, you didn't attend, for example, a class or a seminar in which Ms. Mongongu was conducting training, correct?

A. That's correct.

Q. She explained to you how to use the instrument and maintain it while you were actually at work performing work on various samples in the lab; is that right?

A. No.

Q. And what else did she do aside from showing you how to do the work you've just described while at work?

A. I did not use samples. I used our blank urinary.

Q. So it wasn't that you were trained on samples; you were also trained on blank urine, correct?

A. Yes. The training was solely on the

blank urine. Because when the training is not validated, I'm not allowed to work on samples.

Q. And when were you first allowed to work on a sample by yourself using the IRMS instrument?

A. I believe it was towards the end of February.

Q. And that was 2006?

A. Yes.

Q. So it wasn't until about five months before -- five or six months before the 2006 tour that you were allowed to use instruments by yourself; is that right?

A. Yes.

Q. Because LNDD had not determined -- had determined that you were not ready yet, correct, to do it by yourself?

A. Well, I was in a training period.

Q. Prior to the end of February of 2006.

I'd like you to turn to page -- USADA Page 254, please, which is Exhibit 25.

Can you see that?

A. Yes.

Q. Okay. I'd like to turn your --

Todd, could you blow that up a little bit so that it's clearer, that center part -- that center rectangle?

All right. You're operator 26, correct?

A. Yes.

Q. Looking at that center entry there, it indicates -- actually, it'd probably be easiest to allow the translation -- Madam Interpreter, can you go ahead and read the data from left to right, from the date to the reason of transfer?

THE INTERPRETER: That would be August the 3rd of 2006. I believe, that is at 11:03 a.m., and the operator code number is 26. The localisation would be the site, perhaps.

S004, ambiant is -- it's the temperature. And mise en tube -- there is that famous word again, aliquot for confirmation EC 31.

Q. And that's what you did at 11:03 on August 3rd of 2006, correct?

A. Yes.

Q. Now, looking at this form, which is USADA 254, show me on the form where it shows that you received -- excuse me. Let me reask

that question. Show me on the form where it records the transfer of the sample to you.

A. The transfer is not written, but it is written that at 11:03 I received the bottle.

Q. Well, the form reads, if I'm not mistaken, that at 11:03, the aliquot occurred, correct?

A. In order to do the aliquot, I have to have the bottle in my hand.

Q. Certainly. But where does it show the time or how that you received the bottle, the transfer? In other words, not that you did the process, but where does the form show that the transfer occurred from operator 18 to you?

THE INTERPRETER: Operator 18?

Q. Yes.

MR. DUNN: May I interpose an objection. The witness just stated that in order to do the function she already said she did, she had to have received the bottle. So you have asked it answered -- you've asked it, and she has answered.

MR. SUH: It's actually not right.

Q. The question was, where on the form does it show the time or how or any other data

about the intra- -- intralaboratory transfer?

How it go from 18 to 26? Not that she had it at 11:03 and did the aliquot. Of course, she had to have it. But the chain of custody is from -- is the process she -- by which the sample moves through the laboratory.

We know that -- that the form here records where and when certain things were done to the sample; but where does the form record how the bottle moved through the laboratory through each of those steps?

A. The transfer is not recorded, is not written.

Q. And why don't you now look through what is Exhibit -- Exhibit 25 and find for me any document that shows, once again, the intralaboratory transfer in this process, any document.

Exhibit 25 is the lab pack for the B sample.

THE REPORTER: For the what?

MR. SUH: B sample.

MR. DUNN: I'm sorry. Could you repeat that for me? I didn't catch it.

MR. SUH: Why -- can we have the

question read back?

(Reporter complies.)

MR. DUNN: I guess I -- my -- my request would be that when you say "the process," you'd be more specific, because there are a number of processes involved.

Q. The process by which the sample moved through the intralaboratory transfers from stage to stage, which is listed out here in the 1, 2, 3 operations that are set there. Find for me a document that shows how the sample moved through the laboratory in each of these tests.

A. There is no -- there is no registration or entry with respect to how the sample is transferred.

There are entries which pertain to who received the bottle at what time, and when, and where.

Q. In other words, information, just like the information we have up here, which is the operator, the time and date in which an operation was performed, and what operation it was, correct?

A. Yes.

Q. But nothing else?

A. No.

Q. All right. I'd like to turn your attention to that -- what we've all been calling the retesting process.

THE INTERPRETER: The what?

Q. The retesting process. The process by which -- the processing by which ten samples were tested using the IRMS method in April of this year, seven of which were Mr. Landis' samples, three of which were other samples.

You -- you participated in that process, correct?

A. Yes.

Q. And it was you and Ms. Mongongu who participated in that process, correct?

A. Yes.

Q. Turning your attention to the process by which an IRMS analysis is conducted, you would certainly agree that it takes place in more than one or two or three steps, right? There are many steps involved in conducting IRMS analysis; is that right?

A. There are three steps -- there are three well-defined steps.

Q. And the -- and the -- why don't you

just describe what the three steps are.

A. The preparation of the samples, the identification of the analyst by GC/MS, and the isotopic analysis by IRMS.

Q. And your -- during the course of your training, isn't it true that you were taught that it's important to record information about the steps along the way, correct?

A. Yes.

Q. And certainly you would never delete any information or data of any of those steps during the performance of the IRMS analysis, correct?

A. Correct.

Q. You would also agree that the performance of the sequence testing, as part of IRMS, the sequence analysis, consists of having the IRMS instruments analyzed, various samples in order, from beginning to end.

A. Yes.

Q. And that those samples are -- just confirm for me -- they're stability runs?

A. Stability runs.

Q. Three of them -- one, two, three, in order -- and then Mix Cal IRMS, one, two, three,

in order, correct?

A. Correct.

Q. And then mix cal acetate, correct?

A. Yes.

Q. And then, in this case, as it relates for testing for exogenous testosterone, six samples --

THE INTERPRETER: There was no answer.

MR. SUH: Well, I was still --

THE INTERPRETER: Oh, you are still asking, sorry.

MR. SUH: Yes.

Q. -- six samples -- three blanks, and three actual specimens -- in each of the three fractions, correct?

A. Well, in fact, the IRMS analysis is one blank, one sample, and, at the time of preparation, we were covering three fractions. So it's not three blank; it's one blank with three fractions.

Q. I didn't mean to suggest there were. I was just trying to move us along. But you're -- right. Blank fraction. Blank fraction. Blank fraction. And each preceding

blank is the blank that contains the same target isotopes as the actual fraction.

THE INTERPRETER: Wait a minute. The same target isotope?

MR. SUH: Yes.

Q. That comes immediately afterwards.

A. Yes.

Q. And then followed off by a mix cal acetate, correct?

A. Yes.

Q. And this order is done in sequence, correct?

A. Yes.

Q. And, in fact, the fact that it is done in sequence is -- is a quality control measure of the lab?

A. Yes.

Q. And it's designed to test the accuracy and the precision of the IRMS instrument, correct?

A. Yes.

MR. SUH: Mr. Chair, I might interject, because there might be a little confusion on that last translation between accuracy and "precision." The precision is not

whether or not the instrument --

MR. BRUNET: Could you read back the question, and then we'll double-check the translation.

MR. SUH: From what I heard her say was different than --

THE INTERPRETER: Could I have some help with accuracy? Is -- I said "correct." Is there anything else you would --

MR. SUH: Accuracy.

THE INTERPRETER: Accuracy is -- it's basically -- the word is used in French for both.

MR. BRUNET: L'exactitude.

THE INTERPRETER: L'exactitude. Perfect. Merci. Merci. Thank you.

Q. Correct?

A. Correct.

Q. And the failure along the way for those quality control steps would lead you to believe that the instrument was not either precise or accurate or exact, correct?

A. Yes.

Q. And in doing these steps in sequence, you would agree that they have to be

done in the order that we just talked about, correct?

A. Yes.

Q. And that they be done one right after another, correct?

A. Yes.

Q. That's the way you were trained.

A. Yes.

Q. Let's now turn to USADA Exhibit 1061, 1061 is an exhibit -- I mean, it's not 1061. It's GDC 1061. Excuse me.

And I know you're just finding -- are you having trouble finding it, the exhibit?

Todd, why don't you go to -- blow up from 16:53:22 through -- well, the bottom of the page.

A. What page again?

Q. GDC 1061. Do you have it in front of you?

A. Yes.

Q. And also, if you'll look up, you can see that part of that document is up on the screen. So you can also use that for reference, too, to help you.

A. All right.

Q. Okay.

So if you could, first, turn to what is 16:53:25, where it says commencing analysis of 1804855F1.

Do you see that?

A. Yes.

Q. And then going down, one, two, three lines, to where the data is saved, the sample F1, that's the fraction F1 that we talked about, right? Would that be the sample, correct?

A. Yes.

Q. And then, if you go down to an entry at 18:28:27, you see that there is a time gap between that entry and the preceding entry.

Do you see that? The time gap is about 50 minutes?

THE INTERPRETER: 50?

Q. About 50 minutes, approximately.

Do you see that?

A. Yes.

Q. Do you recall what happened during that time gap?

A. And, in fact, if you look further down, you'll see that there was a second sample taken, 1804, 2.

MR. SUH: They're all equal, 18 -- it's the time.

THE INTERPRETER: Oh, it's the time. Okay.

THE WITNESS: No, Confusion? Pardon?

Q. It's 19:12:30.

Why don't we highlight that, Todd?

Exactly right.

If you go back up, actually, you can see where the analysis began at 18:28:28 where it says Commencing Analysis. So --

A. In fact, the wait time was the wait time during which the second analysis finished on the GC/MS, so that it then goes to the IsoPrime.

Q. And you remember that occurring?

THE INTERPRETER: You remember that occurring?

Q. Yes.

A. Yes, I do have that image. I do have that memory.

Q. In your head, you have that memory?

A. Yes.

Q. And before today, did you see these

log files?

A. When they were -- when they were printed out at Mr. Bordry's request.

Q. But not before -- not after that time?

A. No.

Q. And when they were printed out -- when you say Mr. Bordry's request, you don't mean Dr. Botré?

A. Monsieur Bordry, oh, okay. Yeah, Botré.

Q. Not -- Pierre Bordry?

A. No, not Pierre Bordry.

THE REPORTER: I'm sorry, not Pierre?

MR. SUH: Not Pierre Bordry. There's two different people.

THE REPORTER: Who did she --

THE INTERPRETER: What was the name.

MR. SUH: I heard her say Bordry

first, so I asked whether or not --

THE REPORTER: May I have the spelling?

MR. SUH: B-O-R-D-R-Y. Yes, the gentleman seated behind you right now.

THE REPORTER: I'm sorry, Mr. Suh. But I don't know who the other one was that -- the distinction.

MR. SUH: The other one --

THE REPORTER: The other distinc- --

MR. SUH: Botré, B-O-T-R-E.

THE REPORTER: Right. And then --

MR. SUH: Mr. Bordry, B-O-R-D-R-Y.

THE REPORTER: Okay.

Q. (By Mr. Suh) Okay.

Prior to the time they were printed out, did you review the log files?

A. No.

Q. So you only saw them one time, correct?

A. Yes.

Q. And you didn't keep any contemporaneous notes of what occurred at this time, on your own?

A. No, but I remember it.

Q. You remember it.

How many IRMS tests do you do on a, say, a monthly basis?

A. About 20.

Q. Twenty a month? And, of course, you

did this test just like you do all the IRMS tests that you do?

A. Certainly.

Q. And can you tell me, I assume just picking one that you would have done, an IRMS test of about 20 a month, if you do one a day, approximately, it's almost every day?

A. Yes.

Q. Do you remember doing an IRMS test in January of 2007?

THE INTERPRETER: In January of 2007?

A. Yes, I did do some.

Q. Yeah, you can remember that, correct?

A. Yes.

Q. Can you remember what you did -- do you remember doing one, say, in -- January 5th?

A. The 5th of January was a Saturday, and I did not work on that day.

Q. You typically only worked during the middle of the week, right?

A. Yes.

Q. So --

A. Normally.

Q. What about January 8th?

A. Well, before that, I was on holiday, so I believe I'd have started preparing samples.

Q. So what about January 9th?

A. I finished the preparation and did the prenotification by GC/MS.

Q. What about February 4th?

A. Just a moment.

Q. You testified just now -- I'm sorry. Go ahead.

MR. YOUNG: Was there an answer?

THE INTERPRETER: No.

A. I don't remember exactly what I was doing on February 4th, because I have no -- no sheet or no paper on which to base -- on which -- to find this out.

Q. Would you like to see a calendar that shows that January 5th, 2007, is actually not a Saturday but is, rather, a Friday? You testified earlier --

THE INTERPRETER: Counsel, did you say Jan- -- did you say January or February?

MR. SUH: January 5. We started out with January 5, and she said it was a Saturday. She didn't work on Saturday.

A. Yes, the 5th of January. Oh, no,

you're right. It's the 6th. I'm sorry. I didn't -- I didn't have all the dates in my head.

Q. Okay. Why don't you turn your attention, now, down to entry 19:29:20. One more down below that.

THE INTERPRETER: I'm sorry. What was the question?

Q. And the one below that. Mrs. Frelat -- am I pronouncing it right? Is that --

THE INTERPRETER: Yes, Fre-lah. It's F-r-e-l-a-t -- the -- but the "T" is not really pronounced.

Q. Mrs. Frelat, when you made the mistake about January 5 and 6th, I don't think anyone here thinks you were trying to mislead anybody. But, you weren't trying to mislead anybody here, right?

A. No.

Q. Of course not. It was just an innocent mistake, right? It was just a mistake?

A. Yes.

Q. Just a mistake in your memory. It happens, right?

A. Well, yes, it was January. It was some time ago. It's a long time ago.

Q. All right. Why don't you go back now to looking at this time gap from 19:29:20, and 20:10:05 -- excuse me. I'm sorry. I've got the wrong one. 19:12:45: -- :45 and 19:29:17, which is about a 16-minute time gap.

Do you remember what happened in that time gap?

MR. DUNN: Excuse me. I just need to interpose a clarification. We don't need to call it an objection, but, I think given that both Ms. Mongongu and Ms. Frelat were involved in the April 2007 analysis, that it's important that you establish that she was the operator on the entries you're asking her about.

Q. Were you the operator on these?

MR. SUH: She testified earlier she remembered.

MR. DUNN: And that's why -- that's why I'm making the objection, just to make sure that there's no confusion.

MR. SUH: Just to make sure that she knows that she already remembered that she was the person who did it? She -- because she had a

picture in her mind. I will, though. I'm not going to ask her about anything that's not hers. Is that -- I mean --

A. The second from the -- from the bottom, the second sample 1804423, F3, is my sample.

Q. Are you saying that you didn't

perform the functions prior to the performance of the F3 sample?

INTERPRETER: F?

Q. Excuse me? F3.

A. Okay. The blank urinary is mine, because it corresponds to the 423 sample.

Q. Right. But you were the operator who was involved in this part of the testing, right?

A. Yes.

Q. Okay. So do you remember what happened in the time gap between 19:12:45, and 19:29:17?

A. I -- I just counted the number of injections that were performed after that, and that corresponds to the fact that I filled my D-A-W-A-R with liquid nitrogen.

Q. Oh, so you filled it with liquid

nitrogen.

THE INTERPRETER: I'm not sure what it is that she put the liquid nitrogen into, D-E-W-A-R.

Q. And you remember that -- you have a present-time memory that you did that in this time gap.

THE INTERPRETER: It's correct, Dewar? It's correct usage?

Q. You can remember sitting here today,

that back in April, between about 4:12 p.m. and about 4:29 p.m. that you refilled --

MR. BRUNET: I'm sorry, Counsel. 7 -- 7:12.

Q. I'm sorry. 7:12 p.m., and 7:29 p.m. -- thank you -- that you refilled the nitrogen?

A. Yes, I said I helped myself by counting the number of injections that were -- that were performed afterwards.

Q. How did you know that the nitrogen needed to be refilled?

A. We know that the Dewar, D-E-W-A-R, remains full for up to about six or seven injections, and so, therefore, it was 7 p.m. at

night. By filling it up, then I could go home.

Q. And how long does it take to complete that process of refilling the nitrogen?

A. More or less?

Q. More or less.

A. About five or six minutes to fill it, and then you have to wait -- and then you have to wait for a certain period of time until it is stabilized.

Q. All right. Let's turn to Page 1064 --

DR. BOTRÉ: Temperature is stabilized.

A. Until the temperature is stabilized.

THE INTERPRETER: Thank you; temperature is stabilized.

Q. GDC 1064. And if you turn your attention to the time entries between, say, 15:30:59 and 16:23:30, you'll see that there is a gap of time between 15:31 and 15:39.

Do you recall what occurred in that gap?

A. Undoubtedly I must have filled it with the nitrogen.

Q. So you remember filling it with

nitrogen at 15:31?

A. No, I don't remember filling it, but it's written there.

Q. It's written where?

A. The -- the time that you say -- the time that's written right in front of our eyes.

Q. Well, there's nothing about -- that's written that you used the nitrogen, right?

A. No, but I --

Q. You're assuming?

A. Yes, I'm assuming, I suppose that I must have filled it with the nitrogen.

Q. All right. Go down to 17:08:22. Same page.

And do you see there's a time gap

between 17:08:22, and 18:03:46. What happened
in that time gap?

MR. DUNN: One moment.

A. Could I see the -- could I see the
whole page?

Q. Yes.

MR. BRUNET: Mr. Suh, our expert is
asking you when you do the blowups, if you could
blow the line up before and after. Thanks.

Q. Ten lines before, and ten lines
after?

DR. BOTRÉ: It's enough two or three
lines before and after just to locate.

THE INTERPRETER: But she -- the
witness is asking for more than that.

Q. Okay. Ten before and ten after, and
if we want more, we'll absolutely do that.

A. Now, that was my last injection of
the samples, and there (indicating) --

INTERPRETER: The witness is
pointing to 1904Blu2F3.

A. -- and that was Cynthia Mongongu's
first injection, and she would have had to wait
until it was ready.

Q. So that's something that Cynthia
Mongongu would know about, not you, correct?

A. No. What I'm saying is that every
day we would prepare two samples. Cynthia would

prepare one. I would prepare the next, or the other. So for each day of the IRMS injection, there would be -- I would have one sample, and Cynthia would have -- or would do the other sample.

Q. Okay. I'd like to turn your

attention now, to Page 1069, GDC 1069.

And Todd, if you could blow up the beginning at 8:45:20 all the way down to, say, 8:59:20.

Okay. Looking at the top there, it says -- at 8:45:31, it says Starting Acquisition, and the data was saved to the 2104stabilite1.raw, and then going down to 1, 2, 3, 4 lines, Starting Acquisition again data saved to again 2104stabilitie1.raw.

And then 1, 2, 3, 4, Starting Acquisition again, data saved to stabilitie1.raw?

A. I see that.

Q. And the data that was saved to the file stabilitie1.raw, on the top two lines there, 2104stabilitie1.raw, and the second one, when you resaved the data with the same file name, the information in that data no longer -- in that file no longer exists?

A. Yes.

THE WITNESS: Can I explain?

A. May I explain?

Q. Sure.

A. So in order to prepare the IRMS, in

the morning, we fill a liquid nitrogen Dewar -- D-E-W-A-R -- and then, after that, we verified the peak center, and when it is good, when it is ready, then we launch, or we start, the stabilization.

I had forgotten to verify the peak center.

When I noticed that, I then verified the peak center and then when -- in order to verify the peak center --

THE INTERPRETER: Is it peak center or center peak --

A. In order to verify the peak center or the center peak --

DR. BOTRÉ: Peak center.

THE INTERPRETER: Okay. The peak center.

A. -- the peak center, you have to open up the 22 CO2.

DR. BOTRÉ: It's -- let's call it the valve.

THE INTERPRETER: Oh, the valve.

A. Okay. The valve, the CO2 valve. In order to -- in order to do the peak center, and then you have to close the valve. And I had forgotten to do that on the second one, which means that I then closed the valve, and then I performed my stabilization.

Q. And why didn't you do this process when you changed the nitrogen earlier?

THE INTERPRETER: When you changed?

Q. The nitrogen earlier? Where you added nitrogen earlier?

A. Because I forgot.

Q. Okay. And you remember now here today that you forgot.

A. Yes, because it caused me to lose time, to waste time.

Q. And the time that it caused you to lose was about beginning at 8:45:31 to about 8:48:55. So you remember this day because it caused you to lose three minutes on April 21, correct?

A. Well, I'm not sure I like the way you put it.

Q. I've never heard that before.

All right.

Why don't you go down to the bottom of the page, 9:25:32. We'll go to where it says -- and Todd, why don't you blow that up all the way to the bottom of the page -- where it says commencing analysis of 2104MixCalIRMS01, and then you see that three lines later, sample file closed, saved to MixCalIRMS1.raw?

Okay?

Are you cold? Would you like a jacket, sweater?

A. No, I'm fine.

Q. One, two, three, four, five, six, commencing analysis of 2104MixCalIRMS02. All right? All going in order? Perfect?

A. Yes.

Q. Okay. Turn to the next page, 1070 --

Todd, you're going to need to blow up a good chunk of that next page --

If you look at the top, you run the results at CalMixIRMS02.raw. Right there? There you go. There's the cal mix IRMS second sample.

Going down one, two, three, four, five, six, commencing analysis of CalMixIRMS03, just like it should. And then one, two, three, CalMixIRMS03, the data saved. Correct?

A. Yes.

Q. And then one, two, three, four, five, six, commencing analysis of

2104MixCalIRMS01 again, one, two, three lines down, MixCalIRMS01 date saved. Again, saved to the same data file, mixCalIRMS01, and then one, two, three, four, five, six, Commencing Analysis of CalMixIRMS02. And then one, two, three lines below that, Cal Mix -- saved to CalMixIRMS02.

One, two, three, four, five, six, Commencing Analysis of CalMixIRMS03. One, two, three, lines below that, saved to CalMixIRMS03, correct?

A. Yes.

Q. Now, do you recall -- and, of course, the data from the first three cal mix -- MixCalIRMS 1, 2, 3, whatever those results were, are gone, right?

A. They -- they don't exist anymore because they did not correspond -- because they were not mix cal IRMSs, it wasn't what was -- I'm going to start again.

I remembered that morning, because there was a lot of wasted time, not just three minutes, but more. When I put the mix cal IRMS into the auto sampler, I did not place it in the

correct place, area, and I only discovered that when the third injection was performed.

So then I had to correct -- oh, I corrected the position -- and then I started my mix cal, cal mix IRMS again.

Q. So, just to make sure I understand, you began the automatic sequence, and as the automatic sequence is running from the mix cal IRMS 1, 2, 3, you didn't realize until the end of mix cal IRMS 3 that they were in the wrong place, correct? Correct?

A. Yes.

Q. And then you went back, stopped this process, correct?

A. Well, it stopped by itself.

Q. Okay. And then you went back and put three new mix cal IRMSs in the right place?

A. The injection of the mix cal IRMS is performed, is done from one vial only, from only one vial.

Q. So you put another vial in the right place and ran it again?

A. Yes. I replaced the vial into the correct position.

Q. And why didn't you, at that point,

simply save it to a different file name, so everyone would know what happened?

A. Well, that's the way I did it.

Q. And absent your testimony here today, that's the only way we would know, from your perspective, what happened here, correct?

A. From my point of view?

Q. Yes. I mean, without your

explanation, there's nothing else that shows what happened to this rerunning, correct?

A. Yes.

Q. And, in other words, if someone were to say, well, the reason why these mix cal IRMS and the log files are shown --

THE INTERPRETER: Counsel, can you start that again.

Q. If someone were to say that the reason why the mix cal IRMS and other samples are rerun and saved with the same file name was because you saw results you did not like and resaved over it. The only way we would know that that didn't happen is your memory of what occurred on that day; is that right?

A. Yes.

Q. Okay. All right. You did the

sample B analysis in Stage 17; is that right?

A. Yes.

Q. Okay. I'd like to -- I'd like to show you what is marked USADA 331 -- 331?

MR. BRUNET: Counsel, we're going to call a recess, 15 minutes.

(Brief recess taken from 9:50 to 10:40 a.m.)

MR. BRUNET: Welcome back. Resume with the cross-examination of Mrs. Frelat.

MR. SUH: The witness is considered

sworn.

EXAMINATION (cont'd.)

BY MR. SUH:

Q. Before we took our break, we were looking at USADA 331. Just to review USADA 331, for the record, it says sequence of the IRMS testing for the B sample for Stage 17.

Going down this sequence file, and you'll see, as you described before, five stability runs, correct? Three mix cal IRMS; one mix cal acetate, the blanks and the samples run, and the blank sample blank sample sequence, correct?

A. Yes.

Q. With the mix cal acetate at the end, correct?

A. Yes.

Q. And you were taught, of course, that this sequence needs to be run in this order, correct?

A. Yes.

Q. And one right after another, correct? Correct?

A. What do you mean one after another?

Q. That they be run in this sequence, one after another, one each, after another?

A. Yes.

Q. Okay. I'd like to now show you

what's been marked USADA 360. Do you recognize -- do you recognize this be- -- as being the data processing result sheet?

A. Yes.

Q. With the acquisition time 12:24:14; the current time of 13:45:11. Do you see that?

A. Yes.

Q. Would you describe to the Panel what the acquisition time is and what the current time is?

A. The acquisition time is the time

when you -- you perform the injection, and the current time is where I have verified the data.

Q. And at the time you did this sample B test, you testified that you did not know that this sample was Floyd Landis' sample, right?

MR. DUNN: Objection. Hold on. This is from the --

A. I didn't say that.

MR. YOUNG: Yeah. Objection. Mischaracterizes her testimony.

A. Once the analysis of the B sample was done, Mr. Landis' name had already appeared in the press.

Q. It had appeared in the press because -- well, let me ask you this: Do you remember what time or when -- excuse me -- when Mr. Landis' name had appeared in the press in conjunction with a positive, or adverse, analytic finding from LNDD?

THE INTERPRETER: Do you remember when it appeared, Counsel?

Q. Yes, do you remember when it appeared.

A. No.

Q. So you're saying that when you did

this test, you knew that the IRMS test that was being done on this sample was Floyd Landis'?

A. Yes, the B; yes, I did know that.

Q. I'd like to show you now USADA Page 347. USADA 347 is the data processing results page for the blank urine for the F3 fraction, right?

A. Yes.

Q. Going back to USADA 331, it is the -- this one right here.

THE INTERPRETER: Just a moment, Counsel. She's getting it. Okay.

Q. Which is just after --

THE INTERPRETER: I'm sorry. Could you repeat what you said before.

Q. This one right here where the arrow is?

MR. CAMPBELL: I'm sorry, Mr. Suh. What -- what document number?

MR. SUH: The one on the screen?

331. We're just switching back and forth, just so it's clear to the Panel.

Q. Which immediately follows the mix cal acetate data processing results you just saw, right?

THE INTERPRETER: No -- there's no answer.

MR. SUH: No? I thought she --

A. Yes, that is the injection that comes right after the mix cal acetate, yes.

Q. Now I'd like to show you -- I'm going to put both of these pages up, which are USADA 347 and USADA 360.

I'm going to make this come out.

This one right here is supposed to immediately precede this one right here, right?

A. They come one after the other.

Q. And can you tell me the amount of time that's separated out, the quality control sample from the blank F3?

A. You'd have to refer to the preparatory sheet for the sample.

Q. That wasn't my question. My question was: How much time separates the blank F3 from the mix cal acetate?

A. About four and a half hours.

Q. Four hours and about 40 minutes? And what happened in the four hours and 40 minutes between the processing of the mix cal acetate and the blank F3?

A. I'm referring now to the preparatory sheet, and I see that --

Q. Can you -- you're looking at a preparatory sheet. What's the number?

A. Zero -- 0299.

Q. Okay.

A. That's the start, and then we'll see the next page also.

Q. All right. So what about this document tells you what happened in the time gap?

THE INTERPRETER: In the time?

Q. In the time gap.

MR. BRUNET: I'm sorry, Counsel. I'm looking at USADA 299 which is what I saw on the screen.

A. It's the next page.

MR. BRUNET: Oh. So 300 is part of 299, is that what's following.

A. Yes.

MR. BRUNET: Okay. Thank you.

A. The mix cal acetate, that is the first one, was injected at 12:24. And at that time, I was finishing my preparation to launch, or to start, the GC/MS.

And then, on the following page, the injection on the GC/MS started at 13:22, 13- -- 1:22, and then I waited until all the fractions were analyzed in the GC/MS, and then I could begin my analysis of the IRMS. And then the time that I actually started, that I started my IRMS analysis, is on the next page.

I placed my samples -- oh -- on the auto sampler of the IRMS.

Q. So your testimony is that you did -- you ran the calibrators and the standards prior to the time these samples were even ready to be run in the sequence?

A. Yes, but there's no problem with that.

Q. Okay. I'd like to turn your attention to this.

MR. CAMPBELL: Is that in our packets, Mr. Suh?

MR. SUH: It's actually not numbered as an exhibit. I've been using it as a demonstrative. It appears both in USADA's brief and ours. Would you like to make it into an exhibit?

MR. CAMPBELL: Sure.

MR. SUH: Can we do that at a break?

MR. CAMPBELL: Sure.

MR. SUH: We will make it into an exhibit, and we'll give it a GDC number.

MR. DUNN: Mr. Suh, if you will wait until I get my copy in front of me real quick.

MR. SUH: Sure.

MR. BRUNET: What page in the brief is it?

MR. DUNN: 22 -- am I wrong? It's in their supplemental brief -- it's in their supplemental brief at Page 22.

Q. You participated in the reprocessing of the electronic data files that were removed from the IsoPrime 1 instrument under the supervision of Dr. Botré; is that correct?

A. Yes.

Q. And in particular, the ones you participated in reprocessing were the B sample, both the blank and the actual samples?

THE INTERPRETER: The B sample and what?

Q. The blank and the actual samples.

A. Yes.

Q. That's the actual sample as they

would appear. And then for the blanks, those values right there; is that correct?

THE INTERPRETER: Those what?

Q. Those values right there?

A. Yes.

Q. And these are the per mil isotopic values?

THE INTERPRETER: I'm sorry, Counsel.

Q. These are the per mil isotropic values on the reprocessing of Stage 17, correct?

THE INTERPRETER: Of the what?

Q. Of Stage 17.

A. Yes, of the delta/delta.

Q. And looking at the chart here, these values right here in the box are the original results on the sample, the ones that were originally reported when you did your analysis in August of 2006, correct?

A. Yes.

Q. And these are the values on the blank, correct?

A. Yes.

Q. Right. I'd like to first turn your attention to how you did the processing on the

original samples, okay?

A. Yes.

Q. Now, could you describe for us how it was that you did the process by which you arrived at those results -- let me ask you a more -- a different question.

When you -- when you did the -- when

you did the first analysis to achieve these per mil results, did you use the OS2 automatic background subtraction feature of --

A. When a report was drawn up in the OS2 software program, I would always verify the estimate -- the estimate of the background noise and the integration of the peaks.

Q. And you would do that manually, correct?

A. Yes.

Q. Now, when you do it manually, what you are doing is you're looking at a monitor, correct?

A. Yes.

Q. And that when you are looking at the monitor, you are choosing where the peaks begin and where they end, correct?

A. In referring back to two over one --

of signal two over one.

(Interpreter asked Mr. Brunet for assistance in French.)

A. Oh, with referring to the traceability of 44 over 45.

Q. When you are referring to that, you then make a determination --

THE INTERPRETER: You did not?

Q. You then make a determination of where the peak should begin and where it should end, correct?

A. Yes.

Q. And you know that your own standard operating procedure, which I'm going to call as your SOP, says that you have to exercise great care in picking where the peaks begin and end, because it can have a dramatic --

THE INTERPRETER: Where the peaks begin --

Q. -- and end, because it can have a dramatic impact on the isotopic value at the end results, correct?

A. Yes. It is written that we must be very careful, but it's not written that we have to be dramatically careful.

Q. You don't have --

A. That it's not -- it's -- it's -- it is written that we have to be very careful, but it doesn't say that it can have dramatic consequences. Sorry. It doesn't say that it will have dramatic consequences, the results.

Q. All right.

A. Nor that it will affect -- or that it will affect the results in a dramatic way.

Q. Before you get there, let me ask you this question.

MR. YOUNG: Wait. She's not --

MR. SUH: She answered the question.

MR. YOUNG: She answered the question -- I don't know. If she wanted to look at something to complete her answer, then she hasn't answered the question; and if she has, I guess you can ask her.

Q. Did you complete the answer to your question?

A. It is written that one must be careful because, otherwise, there could be a significant change in the results, not a dramatic change.

Q. Oh, I see. A significant and not a

dramatic.

Do you think in carbon isotope ratio testing -- well, let me ask you the question this way:

What do you believe is a significant difference in carbon isotope -- in carbon isotope ratio testing for your final per mil value for any target isotope? What do you think -- what do you believe is a significant result?

MR. YOUNG: And is this in the context of reprocessing or in any context whatsoever?

MR. SUH: In any context, as it relates to the SOP.

Q. What constitutes, in your mind, a

significant difference?

A. A difference of 1.5 --

THE INTERPRETER: I'm not sure if it's 1, comma, 5 or 1.5, because it tends to be the opposite in French --

A. Okay. 1.5 -- 1.5, 1.6 per mil.

Q. So, to your mind, a significant difference is 1.5 or 1.6 per mil?

A. Yes.

Q. What happens if an athlete would have a test result which is 1.5 -- let me ask the question this way:

You're aware that LNDD would report an adverse analyt- -- analytical finding --

(Mr. Brunet helped with interpreting.)

Q. Which I'm going to call an AAF from here on out, okay? Quicker, all right? Whenever there is a greater than negative 3 per mil difference?

THE INTERPRETER: Difference? Negative 3?

Q. Negative 3 per mil difference, correct?

A. Yes.

Q. And so your belief -- I'm sorry. One and a half to 1.6 is about half of 3 per mil, right?

A. I'm sorry. I really hadn't -- I just hadn't understood your question clearly.

Q. What is the measurement of uncertainty at LNDD?

A. Zero point eight per mil.

Q. But, in your mind, a significant

difference would be 1.5 or 1.6 per mil, correct?

The witness: Oui.

Q. And can you point to an SOP in front of you where it defines a significant difference as about 1.5 or 1.6 per mil?

THE INTERPRETER: That would be what, Counsel? A significant difference of?

Q. 1.5 or 1.6 per mil.

A. It's not written -- it's not written anywhere -- my answer was really concerning myself.

MR. CAMPBELL: Mr. Suh --

A. In my opinion.

MR. CAMPBELL: I'm sorry. I don't mean to interrupt, but if you don't mind, there was a previous question that I thought you had asked, that she answered in French, but it wasn't interpreted in English, so I don't know that it got put on the record.

I'm sorry. It was like two questions before.

MR. SUH: I don't recall.

Sometimes, I'm just listening to the witness.

MR. CAMPBELL: Right. I just want to make sure we got it on the record as a "yes."

I think you said oui. That's a "yes," right?

THE INTERPRETER: Yes, sorry.

MR. CAMPBELL: But I think it was two questions before. Ms. Court Reporter, do you know what I'm referring to?

THE REPORTER: I put Oui.

MR. CAMPBELL: You put oui? Okay. All right. Thank you.

MR. SUH: Does that part count against our time? That's fine.

Q. All right. Let's go back to this chart that we had up before.

Now, turning to this column, this column was done, this one right here -- put a little 2 by this -- was done using the same process by which -- by which you did this -- this process here. In other words, you went in and identified where the peaks begin and end, correct?

A. Yes.

Q. And you were, of course, trying to do the very best job you could when you did that one, right, in identifying where the peaks begin and end, correct?

A. Yes.

Q. And you were, of course, trying to use the very best technique and do your very best job when you did the original result?

A. Yes.

Q. Okay. But when you look, do you see that any of the results are the same?

THE INTERPRETER: Do you see if any of the results are the same?

Q. Right.

A. Let me see how I can say that. The delta/delta values for the 5 beta and 5 alpha are close, and for the andro and etio, they are different.

Q. You are saying that, in your mind, the ones that are close are close enough?

A. Yes.

Q. They're certainly within your own personal judgment of 1.5, 1.6 per mil difference?

A. Yes.

Q. When you were doing the manual reprocessing, did you maintain any record when you did this process to get the original results?

A. There is -- there is a sheet with

results which is called analysis report, GC/C-IRMS results. It's on two pages, and the numbers are USADA 0351 and 0352.

Q. And before we put those out, it's your testimony that those pages document your choices of where the peaks begin --

THE INTERPRETER: Your choices of where the peaks begin?

Q. -- and end when you did the Stage 17 original test?

A. These are the results -- this is the report of the results which I have found.

Q. Right. It's a -- it's the report of what you concluded. Is there a report of how you came to that conclusion when you were using your own judgment about where the peaks begin and where they end?

A. We do not print any reports that show the 45 on -- the 44, 45 traceability.

DR. BOTRÉ: Trace.

THE INTERPRETER: Trace. Sorry.

A. We only have the report, the final report, after we've done the work and the chromatogram with the trace of the --

DR. BOTRÉ: Ion.

THE INTERPRETER: L- --

DR. BOTRÉ: Ion, i-o-n.

THE INTERPRETER: Oh, the ion measure.

A.   The major ion, or the highest ion, the greatest ion.

Q.   In other words, is what you're describing is you have a report of the results and not of the process, correct?

A.   Yes.

Q.   Now, of course, this process by which you identified the beginning and the end of the peaks is also designed to reduce background subtraction?

THE INTERPRETER: To what?

Q.   To reduce -- or excuse me. Yes. To reduce background subtraction or adjust for back- -- adjust for background?

(Interpreting by Mr. Brunet.)

THE INTERPRETER: Mr. Botré?

MR. BRUNET: Perhaps I was wrong. If you could rephrase that, Counsel, the question.

Q.   This process that you described, the manual determination of where the peaks begin

and where they end, is the process, or part of the process, that relates to background subtraction, correct?

(Interpreting by Mr. Brunet.)

A.   When we verify our data, we verify

the integration of the peak, and we also verify the estimate of the background noise.

Q. The background subtraction is also done manually, correct?

A. When it's not properly done, yes.

Q. And in this case, do you recall whether or not you did it manually for Stage 17?

A. May I look?

Q. Sure. Look at whatever you wish.

While you're looking, if you could think of this one question: When you say you look at -- you do manual background subtraction, that's what you were taught to do as part of your training in LNDD, correct?

A. When it is necessary.

Q. But that's part of your training; when it's necessary, you do it.

A. Yes.

Q. And that determination of when it's necessary is in your own judgment, correct?

A. We have to correct the background noise when the software has placed the background noise on a peak.

Q. Okay.

A. I proceeded -- I proceeded to verify and -- I proceeded to verify the samples and the blank urinaries.

Q. This is for Stage 17,

A. Yes. Yes. Are -- are you asking me if I verified --

Q. No, no.

A. I -- I did the verification, and I reprocessed it. That's it.

Q. That wasn't my question.

My question was: For Stage 17, when you did these, did you -- do you use --

THE INTERPRETER: I'm sorry. I didn't hear what you said there, Counsel.

Q. For Stage 17, when you got these original values, did you use manual techniques on background subtraction?

THE WITNESS: Yes, I just said that.

A. Yes, I just said that.

Q. So let me show you a question -- this is a question that was posed to LNDD -- I

will highlight it for you.

Madam Interpreter, could you please read this in French?

(Interpreter read the particular section in French and English.)

MR. BRUNET: Yes, for the rest of us, Counsel, could you read that for the record, please.

Q. Yes.

"Please explain with mathematical formulas, how LNDD performed and applied background subtraction to Sample 995474 and related controls?"

And the answer is -- I will walk you through this -- See response to second request, C10.

(Interpreter reads the particular section in French.)

Q. I'll show you C10 now, where it says background subtraction is embedded --

THE INTERPRETER: Oh, I'm sorry. Do you want me translate that?

MR. SUH: Yeah. Why don't you translate it. Do you want me to read it and you translate that?

THE INTERPRETER: Not at the same time for the -- the court reporter.

MR. SUH: Go ahead and translate it, and then I will read it.

(Interpreter read the particular section in French.)

Q. So the answer to that question --

MR. BRUNET: Counsel, could you read for the record?

Q. Sorry.

The response is: "Background subtraction is embedded in the instrument software which is proprietary to the instrument manufacturer. LNDD has no separate documentation."

Okay?

A. Yes.

Q. So the question was: How was background subtraction done for the sample, and the answer is, from LNDD, it's done in the instrument -- done by the instrument software.

This answer is not correct, right?

A. Well, I wouldn't say that. It's complicated to explain. The subtraction of the background noise is performed by the software,

and I am able to correct it if -- if the evaluation is done -- if it's done on a peak or in a peak.

Q. That didn't sound too complicated to me.

That description you described is certainly not in this answer, is it?

A. What did you just say?

(Interpreter repeated in French.)

A. What was the remark you just made?

Q. It doesn't sound that complicated.

Is your description anywhere in here in this answer?

A. No.

Q. Let's go back to this. Let's go down to the blanks.

Now, you would agree that blank

urine samples are an important quality control measure in the testing process?

A. They are important.

Q. And when you look at, for example down here, the 5 alpha blank on the actual result for Stage 17, it then would run with the automatic background subtraction, and then the value jumps up larger than your own personal

measurement of uncertainty, 1.5 or 1.6 per mil, correct?

A. It is different, yes.

Q. No. My question was, the value difference is larger than your own personal measurement of uncertainty, correct?

MR. YOUNG: That's -- that's a mischaracterization. She -- what she said was 1.5, 1.6 would be a significant difference to her, and a measure of uncertainty was the 0.8.

THE INTERPRETER: Was what?

MR. YOUNG: Is 0.8. I don't believe the witness ever called 1.5 or 1.6 a measure of uncertainty.

MR. BRUNET: Counsel, could you please reformulate your question?

MR. SUH: I object to the speaking objections. I -- it's clear that, at this time, Counsel is instructing the witness on how to answer these questions. If he wants to object to the proper formulation of question, I will reask the question.

MR. BRUNET: I didn't hear an instruction to the witness. I did hear, about an hour ago, about how the witness was

answering, and she did not refer to measure of uncertainty being in the 1.5 or 1.6.

Q. (By Mr. Suh) Let me try the question again.

You earlier stated that a significant difference, for you, is 1.5 or 1.6 per mil, correct?

A. Yes.

Q. And the difference between 1.6 over here, and 3.45 is greater than 1.5 or 1.6, correct?

A. Yes.

Q. And how would you explain how, when you did your manual processing originally here, that you arrived at such a different value than if you ran the automatic background subtraction? Why are the values, in your opinion, so different?

DR. BOTRÉ: The correction or the adjustment.

THE INTERPRETER: The correction or the adjustment.

DR. BOTRÉ: No. The correction; or

another word is adjustment.

THE INTERPRETER: Yes. So the

correction or the adjustment is not necessarily right -- no, no, no --

A. I'm a little lost. Let me -- let me start --

THE INTERPRETER: She's saying, I'm a little lost. Let me start again.

MR. BARNETT: Could we have the question read back just for the record?

(Reporter complies.)

A. The automatic correction is not necessarily -- the automatic adjustment is not necessarily the correct one. And I must have had to correct the automatic, so I had to correct the estimate.

Q. Now, the automatic one, when you corrected it, was in excess of minus 3 per mil?

MR. YOUNG: Objection. Again --

MR. BARNETT: Objection.

MR. SUH: Just state the basis of your objection.

MR. BARNETT: It misstates the facts. It misstates the facts.

MR. SUH: Okay. I will restate the question.

Q. When you look at the automatic

correction, that result is in excess of minus 3 per mil, correct?

A. I -- I think it is superior to minus 3 per mil. When -- when I verify my data, I don't always look at the page that's come out of the printer. I look on the screen. I look at my -- I look at the --

MR. BRUNET: Ion.

THE INTERPRETER: L? Oh.

A. -- the ion signal, the largest -- the major, the greatest ion signal, and the signal of 2 over 1.

Q. And when you saw this, of course, 3 per mil is -- in excess of 3 per mil is a standard by which you would report an AAF?

THE INTERPRETER: An AAF?

Q. Yes.

A. Well, in the laboratory, do what you're calling an AAF, when -- when it is superior to minus 3.8 per mil.

Q. So when you saw this figure -- this one.

So is LNDD required to take into account the point 8 measurement of uncertainty in the IRMS?

THE INTERPRETER: Counsel, please.

Start again.

Q. Sorry. Is LNDD required to take into account uncertainty in the measurement of IRMS delta values?

THE WITNESS: It's not required.

A. It's not required -- they're not required, but we do do that.

Q. You're not required to, but you do it anyway?

A. Yes.

Q. And who taught you that?

A. I don't remember anymore, but I know that's what I do.

Q. So what did you see when you first looked at the monitor and you saw the isotopic value that required you to correct it back to a minus 1.6?

A. It's not the values that I saw; it's the integration.

Q. I'm sorry. What did you see in the integration that caused you to make your manual adjustment to get a more accurate value?

A. The -- the estimate of the start and the end of the peaks, perhaps, was not good, was

not correct; or perhaps there was some background noise in the ascent of the peak. I'm not sure I can be clearer than that.

Q. So one of those two things, correct?

A. Yes.

Q. But you don't remember which one, right?

A. No.

Q. And there's no record of which one of those two things it was?

A. No.

Q. And your testimony is that you were better able to do the background subtraction than the computer automatic subtraction, so that it needed to be fixed, correct?

A. Yes, because it needed to be corrected.

MR. SUH: I have no further questions for this witness.

MR. BRUNET: Thank you, Counsel.

EXAMINATION

BY MR. YOUNG:

Q. I'm going to ask two questions, and then I'll turn it over to my colleague, Mr. Dunn.

I'm just going to ask you about the -- the data processing piece --

THE INTERPRETER: The piece?

MR. YOUNG: Yeah.

Q. -- about data processing. For the Panel's benefit, this is from GDC 00970.

Jenny, could we get her that, just

as an example?

So when you're looking at the background that's drawn by the instrument automatically, and the peak start/stops that are drawn by the instrument automatically, do you have this ion trace in front of you?

A. The one -- the one there?

Q. Yes, an ion trace like this.

A. Yes.

Q. And -- and then, do you have the peaks in front of you that you see down here?

A. Yes.

Q. And at that point, are there any numbers on those peaks in terms of delta values?

A. Yes.

Q. And when you go -- is this -- is this -- and then when you go to start a peak or stop the peak, what do you use in order to

decide where that peak -- peak starts or stops?

A. I do a zoom on the 2 over 1 trace and on the -- and on the superior ion or the greater ion.

Q. Okay. And is there a set of numbers anywhere that helps you in that process?

A. When I perform the zoom, I no longer -- I no longer see the delta values, because they're outside of my -- they're outside of the area that I can see.

Q. Okay. And is there a set of numbers, the numeric ratio of 2 over 1 that you can look at?

A. I only see the time schedule.

MR. BRUNET: Scale.

THE INTERPRETER: Scale. Time scale.

Q. Is -- is there a box somewhere that pops up with numbers like 1.74, something, something?

A. When -- when -- when I do the zoom, there is no box, but then I have to call it up. I have to ...

Q. I see.

A. Then when I -- then when I bring up

the box, then I can move it; then I can move my cursor over. When I -- when I want to use the cursor to move, then I can -- then the box will come up -- pops up.

Q. And how do you use that box as you move the cursor?

A. When -- I look to see when the signal of 2 over 1 increases, and that means that I have a peak that's -- that's starting.

Q. Okay. When you -- let's take the situation when you manually adjust the background, and then you manually adjust the peak start or the peak stop. Then, do you yourself do the calculation of what results to the delta values?

THE INTERPRETER: What results to the delta values?

Q. Yeah. What the delta value result is for, or does the instrument do that calculation?

THE INTERPRETER: Or does the instrument do what?

Q. Do the background subtraction calculation.

Was that clear?

THE INTERPRETER: Could we reread -- you reread that?

Q. Okay. So you select the peak to start, and then does the instrument itself perform the background subtraction?

A. Yes.

EXAMINATION

BY MR. DUNN:

Q. Just -- just to follow up on something that Mr. Young inquired.

When you start -- when you start a peak and you end a peak, is it the instrument that calculates the area under the peak?

A. Oh, I don't know anymore.

Q. Okay. Let's talk a little bit about a couple of things that came up during your cross-examination.

Would you do -- would you, please, take a look at USADA 254, which is in Exhibit 25. 254, on Exhibit 25. Do you have that there?

A. Yes.

Q. Okay.

A. Yes.

Q. If you could blow that up a little

bit, that bottom table.

You see -- where's that pointer? Well, here, can I do it here on the screen.

There it is, okay.

You see this entry here, right there, this 26? That's you, right?

A. Yes.

Q. Okay. And this is an entry on August 3rd, 2006 at 11:03. Do you see that?

A. Yes.

Q. Okay. Now I'd like you to go to USADA 259 -- did I say?

MR. YOUNG: 299.

Q. 299.

And, if you could, James, blow up -- let's see, where it is, this section here.

Okay. Now, this is your handwriting, correct?

A. Yes.

Q. And what does this reflect? Particularly, this value, that number there?

A. That is the time that I took the test sample.

Q. And does that correspond, switching back to Page 254, to the entry we just

described?

A. Yes, that does correspond to it.

Q. So, I'd like to use this as an example to clarify so you can clarify something that came up in cross-examination.

And as I -- I understood your testimony, you stated that LNDD doesn't have a single document that reflects each transfer in the chain of custody, correct?

A. I had understood that the gentleman who was talking was talking about transfers between persons or people, individuals.

Q. Does LNDD have a document that reflects who was in possession of the sample when and for what purpose?

A. Well, the preparation report --

Q. Is the answer yes?

A. -- the preparatory report. Yes.

Q. Now, we were talking about the test that you conducted in April 2007, and Mr. Suh was asking you a lot of questions about why it was you were able to remember very specific events during that time frame.

Was there anything particularly memorable about that week, such as the presence

of three or four experts watching every move you made, that allows you to --

MR. SUH: Objection. Leading the witness.

MR. BRUNET: Mr. Dunn.

MR. DUNN: I will rephrase it. Thank you.

MR. SUH: Thank you.

Q. What about -- what about the April 2007 events allow you to recall those events as distinguished from events that may have happened in early February of 2006?

A. The difference -- the difference with the week of April, that particular week of April in 2007, is that we worked for 12 days in a row, and there were -- there were people there -- there were people there who were observing every single thing that we did.

Q. I'm sorry. Could you repeat it?

THE INTERPRETER: Could you -- could you read it back?

(Reporter complies.)

A. And the days were very long indeed.

Q. Just a few more questions.

When you do IRMS analysis, and you

do the instrument verification on the IRMS machine, and you determine that there is something not operating properly, is it normal for you, before you proceed with the next steps in the analysis, to pause?

MR. SUH: Objection. We're leading the witness again, and compound.

MR. BARNETT: Are we really going to start compound objections?

MR. SUH: We will just do leading.

MR. BRUNET: I'd tend to agree with Mr. Suh on this one as well.

Q. What do you do when you determine a problem exists in instrument verification before you go into the next steps?

A. During the verification, you stop the instrument, and you correct it if there is any error to be corrected for the verification.

MR. DUNN: No further questions. Thank you, Mrs. Frelat.

MR. BRUNET: Mr. Suh.

MR. SUH: Very briefly.

EXAMINATION

BY MR. SUH:

Q. You testified just now that, when

you were looking at the monitor, when you were doing your manual adjustments, that you have the ability to zoom in and look at the peaks, correct?

A. Yes.

Q. And you need to be able to look in -- zoom in and look at the peaks in order to make the determination that you're talking about here today with respect to your adjustment, correct?

A. Yes.

Q. And show me in the documents where the printouts of the zoom-ins are?

A. There are no printouts of the zoom.

Q. There's no record of the zoom-in that you use as the basis for your determinations of where the peaks should begin and end, correct?

A. Yes.

Q. And when you do zoom in, when you were being asked questions on redirect, you said that you can't see the isotopic value.

A. Yes.

Q. So -- so, just to use as an example -- let's say we have a peak like this -- I'm

going to take this off -- and let's say you zoom in, you can't see the isotopic values, right --

but when you zoom out --

THE INTERPRETER: Wait a moment.

Q. -- you can see the values again, right?

Here we go in; here we go out. You can see the values, right?

A. Yes.

MR. SUH: No further questions.

A. What's the point?

MR. BRUNET: Unfortunately, only Counsel can ask questions.

A. Sorry.

MR. SUH: If you stay around to the closing --

A. Sorry.

MR. SUH: -- we'll get to the point.

MR. BRUNET: Thank you very much for your time. You're now free to go.

And we'll recess for lunch and be back in an hour at 1:00.

(Recess taken 12:00 to 1:20 p.m.)

MR. BRUNET: Ready, Mr. Barnett?

MR. BARNETT: USADA calls Greg

LeMond.

WHEREUPON,

GREG LEMOND,

the witness herein, having been first duly sworn to state the whole truth, testified on his oath as follows:

EXAMINATION

BY MR. BARNETT:

Q. Good afternoon, Mr. LeMond.

A. Good afternoon.

Q. My name is Matthew Barnett.

You understand that I'm an attorney for the U.S. Anti-Doping Agency?

A. I do.

Q. And we met briefly for the first time last evening, correct?

A. Yes.

Q. Mr. LeMond, could you briefly summarize a few highlights of your cycling career for the Panel?

A. I started in 1976, raced on a national team in 1980. I was on the -- won the Olympic trials, was on the Olympic team. That year, I was -- it was a boycott. I signed a contract to race professionally, in 1981. My

goal, of course, was to try to win the Tour de France or be in the potential race and win the Tour de France, and I won the Tour de France three times and retired in 1994.

Q. What were the years that you won the Tour de France?

A. 1986, 1989, and 1990.

Q. Mr. LeMond, you do understand that

we're here today to talk about Floyd Landis, correct?

A. I do.

Q. When is the first time that you met Floyd Landis?

A. 2001, that I remember.

I believe somebody said I might have met him in 1998 at Mount Snow, but I don't remember.

Q. Didn't know him well, in any event?

A. No.

Q. Were you at the 2006 Tour de Georgia?

A. I was.

Q. And who won that tour?

A. Floyd Landis.

Q. How did you feel about Floyd winning

that tour?

A. Well, I was -- I was at Brasstown Bald, and he basically -- basically won the overall race on that day. And I met his family, who seemed to be incredibly nice, met his mom, dad, sisters.

I was incredibly happy that he won the race.

Q. Were you also happy for Floyd Landis when he won the 2006 Tour de France?

A. I was, yes.

Q. And were you disappointed when you heard that his A test was positive for exogenous testosterone?

A. Yes, I was, absolutely.

Q. Did you make public comments at that time displaying your disappointment?

A. I was inundated with requests, and I did a few interviews, and I would not put it that I was expressing disappointment. I was expressing that if -- if he was, indeed, on the positive B sample, that I would hope that he would, you know, help the sport and -- and -- and, you know, come clean.

Q. You didn't -- you didn't prejudge

him. You just were saying if it was true, you would be disappointed.

A. Absolutely.

Q. At some point after the 2006 Tour de France, did you receive a call on your cell phone from Floyd Landis?

A. I did.

Q. Do you recall approximately when that was?

A. I was at a charity event in Massachusetts called the Pan-Mass Challenge. It was August 6th. He called me -- on my phone record, it was 36 minutes that we talked.

Q. That's a phone record that you've

looked at recently?

A. Yes.

Q. Did Mr. Landis tell you -- or did you understand why he was calling you?

A. At first, no. I didn't believe it was him. I was shocked that he was calling me, only because I didn't believe -- I thought it was a prank phone call.

Q. But you became comfortable that it was, in fact, Floyd Landis calling you?

A. Yes. Yeah. He confirmed that it

was really him, and then we got into a discussion about -- he asked, you know, why would I be making these public comments.

And I just responded that the only time they call me is when there's another American either winning the Tour de France or involved in something, and -- like the doping scandal, and I said, Considering this year with the thing called Operation Puerto and you are the Tour de France winner, I am -- was a Tour de France winner, and you did have a positive for an A sample. And I voiced my concerns that if this really happened to a guy like Floyd, you know, this would be -- where the sport is, it's kind of in -- to me a devastating part of the sport. I mean, this is what's happening to the sport of cycling.

Q. Did you give Mr. Landis some advice during that phone call as to what you believed he should do if, indeed, he had engaged in doping?

A. I was very clear that I did not judge that he did or didn't, because the B sample was not positive at that time. I just said, Floyd, I don't know if you did or didn't,

but if you did, you could single-handedly change the sport. You could be the one that can salvage this sport. And I said I -- I hope and would encourage you to come clean.

Q. And to the best of your recollection, what was his response to you encouraging him to come clean? What did he say?

A. He said, What good would it do?

Q. During that conversation, Mr. LeMond, did you share a very personal story with Mr. Landis?

A. I did.

Q. And this was not a story that you have shared with very many people, correct?

A. No. I have not, no.

Q. Without going into the subject matter of that story, was the point to encourage him to come clean if he had engaged in doping?

A. It was. It was to encourage him that he could help the sport but, more importantly, help himself.

Q. And again, to the best of your recollection, what did he say in response to your very personal story and encouraging him to come clean?

A. At this point, he said, I don't see anything that would come of good, or what good would it do? He said, if I did, it would destroy a lot of my friends and hurt a lot of people.

Q. At some point after that conversation, did you learn that Mr. Landis had posted a message on an Internet message board regarding the conversation that the two of you had?

A. I did.

Q. Do you know where the message board -- what message board it was that he posted on?

A. It was called Daily Peloton's Doping Forums.

Q. And -- and you reviewed that message yourself. You saw it at the time that he posted it?

A. I did.

Q. Now, before we talk about the specifics of that message, how do you know that Floyd Landis was actually the Floyd who posted the message on the Internet board?

A. Because I looked at my phone records

from when he called me in August. We actually had to do an Internet search for phone numbers. I found Floyd Landis' phone number through -- I paid 15 bucks or whatever, got his number. He -- I called him. He answered, and I talked to him about what he posted.

Q. And he confirmed that he personally had posted it.

A. Yes.

Q. I want to take you through that message. Would it help you to have a copy in front of it -- in front of you?

A. Yeah, it would.

Q. And for opposing counsel and the Panel's benefit, we had requested in discovery initially postings from Mr. Landis. Those were not provided.

The posting -- well, let me get back to the mic. There's three copies.

The posting was removed from the message board at some point due to a computer error, is our understanding. But it was captured by a Web site, the Chronicles in this case, and that's the handout that I'm using as a demonstrative today.

Mr. Landis, could you review -- and I'm looking at Page 2 of 11 and it carries over to Page 3 -- could you review the inset quoted text, and just confirm for me that that is the post that you remember Mr. Landis making?

A. It is.

Q. And if we could have it up?

So the intro from the message board said, "Someone asked Landis to clarify his previously reported comments about a conversation Greg LeMond has said was Floyd asking for advice, and Landis answered."

Do you see where I'm reading from?

A. Yes, I do.

Q. And could you read the first sentence for us of what Mr. Landis personally posted?

A. "I did, as I used to do for some people, call G.L., Greg LeMond, privately to discuss some comments that he made about me and my situation."

Q. And -- and that's true?

A. Yes.

Q. Just, if you could, just read the next sentence. We'll go through this quickly.

A. "I used to believe that a private

call was the best way to deal with public slander. I have subsequently learned that the phone call will become public and the contents thereof misconstrued into whatever fits the agenda."

Q. Now, if you'll just stop there for a second.

Again, the private -- the reason you called LeMond -- let me start over.

Let's just read the next sentence, and then I'll ask a question.

A. "What Greg actually divulged to me is what he does not want to talk about. I did not call for advice. I called to give him a chance to plead his case as to why he was speaking when he had never spoken to me nor met me in the past and in no way could be portrayed as knowing me personally."

Q. And let me stop you there.

Mr. Landis' post is not true as to whether or not he had met you in the past, correct?

A. Absolutely not true.

Q. Okay. If you could continue

reading, please.

A. "Unfortunately, the facts that he divulged to me in the hour in which he spoke, he gave no opportunity for me to do the same, would damage his character severely, and I would rather not do what has been done to me; however, if he ever opens his mouth again and the word 'Floyd' comes out, I will tell you all some things that you will wish you didn't know and unfortunately I will have entered the race to the bottom which is now in progress."

Q. And let me stop you there for a minute.

You understood -- what did you understand, without going into the subject matter, that Mr. Landis was referring to?

A. A private discussion.

MR. JACOBS: Objection. Calls for speculation.

MR. BARNETT: His understanding calls for speculation.

MR. BRUNET: No, he was referring to --

MR. JACOBS: What was the question? Can you read the question back?

(Reporter reread the question.)

MR. JACOBS: Sorry. I heard it wrong.

Q. You may answer.

A. It was -- he was referring to the conversation of August 6th about my personal story to him about why he should come clean.

Q. If you could, just continue reading, please, Mr. LeMond.

A. "For the record, I don't know Greg and I have no more respect for Greg than I have for people who go through life blaming others for all of their problems. You are not a victim of others, Greg. You are a pathetic human being -- pathetic human -- who believes that if others didn't cheat, not sure about you, you would be the president and all the peasants would bow to your command. Join reality with the rest of us who win some and lose some and keep on smiling."

Q. And again, after you reviewed that at the time, you called Mr. Landis, and he confirmed that he had posted those words?

A. Yes, he did.

Q. Mr. LeMond, have you ever shared the story personally that you shared with Mr. Landis -- the story that you shared with Mr. Landis, have you ever shared that publicly?

A. I have not.

Q. Told very many people about it at all?

A. A few of my very close friends; obviously, my family, but, no.

Q. Is what Mr. Landis was threatening to expose something that you've struggled with to overcome for a -- a number of years?

A. Since my childhood.

Q. Mr. LeMond, only if you're comfortable, would you be willing to share with the Panel the very personal story that you told Mr. Landis that he threatened to reveal if you ever said the word "Floyd"?

A. Yes.

In my conversation on August 6th, I -- when he asked what good would it do, I told him that what good it -- what good it would do, it would help the sport but, more importantly, help you. I said, I haven't told this to many people, but I was sexually abused before I got into cycling, and it nearly destroyed me by

keeping this secret. And that if you indeed did take testosterone, or you do come out positive, that, for your own health, for your own future -- I said, you're 30 years old, but this will come back to haunt you when you are 45, 50. Because if you have a moral compass and ethics, this will destroy you.

And I shared this with him with the idea that maybe -- him seeing what keeping a secret would do.

Q. And you were sharing it in an effort to help him?

A. Yes.

Q. Based on the -- you didn't know Floyd well during that phone call or in advance of that phone call?

A. No.

Q. What was it during that conversation with Floyd that caused you to open up about such a deeply personal issue?

A. Because he was very defensive when he called me. After we talked, it seemed to both of us that we had a lot more in common. I did not blame him. I didn't accuse him. I said I hope for you -- that the B sample is negative.

I have all the respect for you. I've met your family. I think you come from a nice family, good parents. I believe you. The tragic thing is I believe that you're probably a good person that is in a very bad sport that needs -- you know, some -- some hard cleaning up.

Q. And you felt your story might encourage him to come clean?

A. I did.

Q. Mr. LeMond, was it difficult for you to come here today to discuss this subject?

A. Absolutely; very difficult.

Q. Would it have been easier for you to stay away and just not testify?

A. Yeah, I thought about it.

Q. Did you receive a telephone call

last night on your cell phone that you understand was connected to your testimony in this case, Mr. LeMond?

A. I did.

Q. Where were you when you received that call?

A. I was about five minutes from my hotel. I was speaking with my wife to a friend on the speakerphone, and a phone call came in,

which I thought was my attorney.

Q. And then you answered it on the speakerphone?

A. I answered it on speakerphone.

Q. With your wife next to you?

A. Yes.

Q. And is she in the courtroom here today?

A. She is. She's right here.

Q. Okay. Thank you.

What time, approximately, did that call come in?

A. I have a phone -- my phone record. It was 6:53, I believe.

Q. I want to get to your phone record in a minute. But can you tell us who the caller claimed to be?

A. Well --

Q. What he said? What he said?

A. Yeah, he said, Hi, Greg, this is your uncle.

Q. And was it your uncle, Mr. LeMond?

A. And I said -- I thought to myself, my uncle? Most of them -- almost all of them passed away, and the one uncle I haven't seen

for 20 years. And I said, Who is this?

And he said, This is your uncle.

And I said, Who is this?

This is your uncle, and I'm going to be there tomorrow.

And my wife thought, Oh... the only uncle I have is named Ron. And I -- I said, you know, who is -- who is this?

He said, I'm going to be there, and if you want me to finish this -- this was -- it was very upsetting to me.

Q. Mr. LeMond, I will leave it to you, if you want to either characterize it, or if you want to repeat exactly what the caller said.

A. No, I do.

He said, I'll be there tomorrow, and we can talk about how we used to hide your weenie.

Q. Was your understanding that this was a person pretending to your former abuser?

A. No. I got the picture right away that there are very few people -- and I figured this was an intimidation to keep me from coming here, fearing -- thinking that I feared being exposed that I was sexually abused; somehow that

this equates to me admitting that I doped or whatever their purpose was. But he repeated we could talk -- we could talk about how we used to play "hide the weenie."

Q. And your cell phone captured this number?

A. It did.

Q. Do you have your cell phone with you?

A. Yes.

Q. Could you pull out that number. And may I approach?

A. Yes.

Q. Let me. I'll put it up, and then you can explain what we're looking at.

The number at the top is 949-280-8047?

A. Yes.

Q. And that's the call that you received?

A. Yes.

Q. And then you called back a couple of times, right?

A. I called immediately back, because the person hung up on me.

Q. And what happened when you called back?

A. I got a voice mail --

Q. Can we leave that up, please? Did I hit it?

A. Just press the middle button.

Q. There we go. I'll keep doing that. I'm sorry, I interrupted you.

You called back and what happened?

A. I called back, and said -- I got a phone message, This is Will.

Q. This is Will?

A. Leave your message, whatever. I called back again, didn't get a voice mail, and called a third time, and a guy who claimed he was Bill answered.

Q. And -- and that person claimed not to know Floyd Landis?

A. I asked, Did you just call me on my cell phone?

And he said, What?

And I said, Somebody just called me on this number, and for me, basically, you have threatened me and made a personal affront that this -- unbelievable. And I said, Do you know

Floyd Landis?

And he says, Who? And I said, Floyd Landis.

And obviously, I was very upset at this point. And he said, No, I've never heard of that person.

And I said, Well, my name is Greg LeMond, and I'm here to testify in a doping hearing, arbitration, and I said, If you are indeed connected to Floyd Landis, I've already called the police, I'm going to investigate this, and maybe somebody stole your phone number, but I'm not going to let this drop, and I'm going to pursue whoever did this legally and through the police until I find out who did it.

Q. And the first time you called back, you're sure that the voice mail registered "Will"?

A. Yes.

Q. And you, in fact, were so upset that you and your wife filed a police report late last evening; is that correct?

A. We did, yes.

Q. Could you verify for me, Mr. LeMond, that this is the police report that you filed

regarding this incident or that your wife filed regarding this incident?

A. Yes, it is.

Q. Were you also upset enough to conduct your own investigation?

A. I did. I called people that I assumed might know Floyd, or people that were around him or represented him, and some -- the person called me back and confirmed that this was a person that represented Floyd Landis.

Q. So you were able to trace the cell phone through your efforts to a specific individual.

A. Yes.

Q. And the number again is 949-280-8047. What was the person's name that you traced it to?

A. A Will Geoghegan.

Q. Panel members, at this point, if Mr. Geoghegan is present in the courtroom, and I believe he is, we would ask that he stand and identify himself.

(Mr. Geoghegan stood.)

MR. BRUNET: Thank you.

MR. BARNETT: And let the record

reflect that he was sitting behind Mr. Landis' table.

Q. Mr. LeMond, I just want to thank you for being here today, and for your courage in testifying, and we have no further questions.

MR. BRUNET: Thank you, Mr. Barnett.

Mr. Jacobs.

EXAMINATION

BY MR. JACOBS:

Q. Good afternoon.

A. Hello.

Q. Now, I think you said you won the Tour de France three times, right?

A. Yup.

Q. 1986, 1989, and 1990, right?

A. I did.

Q. And the 1989 tour, you won in the final time trial, right?

A. I did.

Q. And that -- your average speed in that time trial, I think, stood as the fastest average speed for a time trial of the Tour for quite some time, right?

A. Very fast downhill course.

Q. Up until -- who broke that record?

A. I have no idea.

Q. Okay. And you retired in 1994?

A. Yes.

Q. And during your cycling career, you never used any performance-enhancing substances?

A. No, I have not.

Q. If you can wait until I finish.

Did you, during your career ever

witness any riders using performance-enhancing substances?

A. No, I hadn't.

Q. Now, since you've retired in 1990, you have had a number of businesses that have all been cycling related, correct?

A. Yes, I have.

Q. And all of those businesses have, to some degree or another, capitalized on your fame as a -- the first American winner of the Tour, right?

A. I started the bike company in 1986. I don't know if that capitalized on my first victory, but I started a bike company in 1986.

Q. Was that -- what was the name of that company?

A. LeMond Bicycles.

Q. And then you also -- is that the same company as LeMond Racing Cycles?

A. It's part of the Trek Bike Company.

Q. So that bike company is now owned by Trek?

A. Yes, well, that's the licensing company.

Q. And they use your name on the bike, right?

A. Yes.

Q. And then -- in some point later, I

believe in 2002, you started a company called LeMond Fitness, right?

A. That's correct.

Q. And that company sells indoor group exercise bikes, correct?

A. Right.

Q. Kind of like the spinning bike?

A. Yup.

Q. Does -- does that bike have your name on it as well?

A. It does.

Q. And in 1999, you signed a contract with a company called PTI, correct?

A. I did.

Q. And that was a contract where you were going to put your name on a -- a -- some cycling-related products to sell sort of low-end, like Target, Costco-type stores, right?

A. Right.

Q. And you're -- you were to be paid largely based on royalties as a result of that?

A. No, it was a ten-year guarantee.

Q. Okay. All right.

MR. BARNETT: Mr. Chairman, I'm just going to note that we seem fairly far afield from the direct, but...

MR. JACOBS: It -- it'll go to motivation for the testimony.

MR. BRUNET: It's cross-examination, Counsel.

MR. BARNETT: Okay.

Q. And you signed that in 1999, right?

A. I did.

Q. And then Lance Armstrong won his first Tour de France in 1999, correct?

A. That's correct.

Q. And then he won his -- Lance Armstrong won his second Tour de France in the year 2000, right?

MR. BARNETT: I am going to object. We're not here to talk about Lance Armstrong, and this is nothing more than a diversionary tactic by Respondent's counsel.

A. And I will say, I will not answer anything about Lance Armstrong. This is about cycling, it's Floyd Landis, and that's all I'm going to answer.

MR. BRUNET: Mr. Jacobs, we're not going to go through the cycling --

MR. JACOBS: This goes directly to motivation because of a history -- he testified in an arbitration against Lance Armstrong in 2005. I'm entitled to explore that as to motivation for testifying here today.

MR. BRUNET: Keep it tight, please.

MR. BARNETT: Again, Panel, we would

object to trying to go that far. And -- and just for the record, Mr. Landis' personal attorney is here. His name is Bruce Manning.

MR. BRUNET: Mr. LeMond's --

MR. BARNETT: Mr. LeMond's. Sorry. Late nights and too many Ls. I knew it was bound to happen.

Mr. Manning is here in -- in -- on

behalf of Mr. LeMond.

MR. MANNING: My name is Bruce Manning. I'm with Robins, Kaplan, Miller & Ciresi law firm in Minneapolis. We participated in that arbitration, representing Greg, and we're not going to permit Mr. LeMond to answer very many in-depth questions on that subject. But we understand that this is this Panel's hearing and that the defense counsel has been instructed to keep his questions tight, and we will trust that he will honor that.

(Note: Mr. Bruce D. Manning, Robins, Kaplan, Miller and Ciresi, 2800 LaSalle Plaza, 800 LaSalle Avenue, Minneapolis, MN 55402-2015, appearing on behalf of Mr. LeMond.)

MR. JACOBS: I'm going to move to strike Mr. LeMond's testimony if I'm not permitted to follow this line of cross-examination.

It directly goes to motivation to be

here.

MR. BRUNET: Mr. Jacobs, you can proceed with your questions, but keep them tight. And I don't know where you're going, because I'm learning as we're going along; but

I'm going to intervene if you ask the witness questions that are not related to this and that are not motivationally justified.

MR. JACOBS: I just want to make sure: Am I going to be prevented from asking any questions about his participation in a lawsuit that was filed against Lance Armstrong where he made accusations about Lance Armstrong in the deposition? Am I going to be precluded from that?

MR. BRUNET: Well, it's the first I hear about that. And that's probably something that the Panel will have to discuss.

Counsel.

MR. MANNING: Mr. LeMond's attorney will instruct him not to answer those questions.

MR. BARNETT: And USADA'S position would be that those are not proper questions given the scope of direct.

MR. JACOBS: Well, I'm going to move to strike the entire examination then, and I'd like a ruling.

MR. BARNETT: And -- and the Panel

has given him reasonable -- reasonable length in order to ask questions, so there's no basis for

strike.

MR. JACOBS: Can I have a ruling, please?

MR. BRUNET: Well, the Panel will have to confer for the ruling. If you want us to recess --

MR. JACOBS: I would.

MR. BRUNET: We'll be back in 15 minutes.

MR. JACOBS: If I can before, I just want to make sure that the Panel understands that in the -- the arbitration where Mr. LeMond was deposed, he made similar allegations which were denied by Lance Armstrong. He made allegations that Lance Armstrong had doped. He made allegations that the other riders --

MR. BARNETT: We will object to this testimony by Mr. Jacobs designed to divert --

MR. BRUNET: I think -- Mr. Jacobs, I think we see your point, and if we need any further information, we'll -- we'll come back from the recess and ask you more questions.

(Recess taken from 1:45 to 2:47 p.m.)

MR. BRUNET: Welcome back.

Is the witness in the room?

MR. BARNETT: I'm not sure if anyone knocked on his door. Just a minute.

MR. BRUNET: Welcome back.

THE WITNESS: Thank you.

MR. BRUNET: Let the record show that, during recess, the Panel met with the parties' counsel in chambers, and we had a discussion about the motion to strike and other matters.

I will let my colleague, Mr. McLaren, explain the state of things at this point.

MR. MC LAREN: We're going to allow the cross-examination to proceed.

So go ahead, Mr. Jacobs.

EXAMINATION (cont'd.)

BY MR. JACOBS:

Q. I'd like to go back to the deposition that you gave in the arbitration matter with Lance Armstrong. In that deposition, you testified that Lance Armstrong told you that everyone used EPO; is that correct?

MR. MANNING: And if I may object,

here, I'm going to instruct my client not to answer that question.

MR. MC LAREN: It's Mr. Manning?

MR. MANNING: Yes, it is.

MR. MC LAREN: Do you have any basis for objecting?

MR. MANNING: There's not a legal basis, but I don't believe this is a proper line of questioning at this hearing. And the current state of affairs for Mr. LeMond and Mr. Armstrong in other issues means that he should not answer these questions at this time.

MR. MC LAREN: Mr. LeMond, it's the Panel's obligation in this proceeding to ask you to answer your questions. I understand your attorney's position. And so I take it you're not going to answer the questions; is that correct?

MR. LEMOND: I'm not. I just want to say that Mr. Jacobs and this Panel can get depositions, my depositions. I said everything under oath, and it's -- it's been published. It's been -- it's on the record. Nothing to hide on any of that. I was under oath, and -- but this is really about my conversation with

Floyd.

MR. JACOBS: If I can stop him from making a speech here.

I should either be entitled to do a

cross-examination or I shouldn't. And if he's not going to answer the questions that I'm going to ask, then I'm going to renew my motion to strike the testimony.

MR. MC LAREN: I have one further question of you first, and that is, are there any other questions you want to ask before you renew any motions?

MR. JACOBS: Well, I have a lot of questions, but I think I'm going to get the same instruction.

MR. MANNING: It depends entirely on the topic of those questions. I could imagine questions that could be asked that Mr. LeMond would be happy to answer.

MR. JACOBS: Well, here's the problem.

MR. MANNING: But I don't know what's going to happen.

MR. JACOBS: Here's the problem. I -- I cannot be limited in that way, given that

he has been called to testify as to a conversation. And as I indicated previously, it's very similar to the Lance Armstrong situation, and that's entirely relevant to this case.

So, I'm not going to be in a position where I only get to ask those questions which Mr. LeMond's counsel feels is appropriate for him to answer. I get to cross-examine him, unless the Panel says otherwise. Otherwise his testimony comes out completely.

MR. BARNETT: And -- and I'd just like to ask, does the Panel wish us to reargue the positions we already argued, because I'm happy to put USADA's position on the record as well.

MR. MC LAREN: You don't need to. We understand your position. You told us that in chambers.

I was only -- sorry.

I was only asking you, Mr. Jacobs, if there was -- if you wish to continue with any part of the cross-examination, and I think the answer back from you is no.

MR. JACOBS: Well, what I would like

is to know if the Panel is going to strike the testimony or if the Panel is going to limit what I can ask on relevant cross-examination issues.

MR. MC LAREN: No, we're not going to limit what you have to ask on cross-examination. We'll allow you a full cross-examination. And what we're going to do if the witness refuses to answer questions is terminate the examination, receive argument from you at the end of the day on both sides as to the weight or value of this evidence.

So now that you know in advance what we're going to do, do you wish to ask any further questions or do you want to retire?

MR. JACOBS: Oh, I'll ask more questions.

MR. MC LAREN: You can sit down, Mr. Manning.

MR. BARNETT: And so the Respondent's position and Mr. Jacobs' position is clear, is he seeking to strike all of Mr. LeMond's testimony suggesting that somehow any other lawsuit or any other alleged bias can go to the fact that Mr. LeMond received a threatening phone call last night from an

associate of Mr. Landis' -- or are you only seeking to.

MR. JACOBS: Are we arguing this again or not?

MR. BARNETT: I'm asking for a clarification of your position. Are you seeking to strike the testimony about the phone call as well, or are you seeking to strike only the testimony about the original admission during the first phone call?

MR. JACOBS: I'm seeking to strike the entirety of the testimony if I don't get the opportunity to cross-examine the witness, and if there's no legal basis for an objection or for an instruction not to answer, then I think the Panel has to instruct the witness to answer.

MR. MC LAREN: I've already done that, Mr. Jacobs and --

MR. JACOBS: Then I'm --

MR. MC LAREN: And he's told me he's not going to answer.

MR. JACOBS: Then I'm going to continue to renew my -- my motion to strike his testimony.

MR. BARNETT: And our only point is he's welcome to ask questions about the phone call, if he wishes, and I'm sure Mr. LeMond will be happy to answer those questions.

MR. MC LAREN: All right. I've invited Mr. Jacobs to consider whether he wants to ask any further questions, and, if he doesn't, we're going to terminate the examination as a Panel and receive submissions from both sides as to the relevance and value of the evidence.

MR. JACOBS: Can I proceed?

MR. MC LAREN: If you wish to, yes.

EXAMINATION

BY MR. JACOBS:

Q. The deposition you gave in the Lance Armstrong matter, you understood that your deposition was elicited by SCA Promotions in their attempts to avoid paying Mr. Armstrong a bonus, correct?

A. I was served on a subpoena, and that's all I'm going to answer.

Q. In that deposition, you also made statements about other Tour de France winners, correct?

MR. MANNING: If I may interrupt?

Panel, we can go through this exercise. I -- I will instruct Mr. LeMond not to answer this question as well. However, Respondent's counsel would like to play it. I understand they have a client here to represent. They're certainly welcome to do it as they like, but I will be instructing Mr. LeMond not to answer any questions related to this previous issue.

I think he's told the Panel very clearly that he will follow my advice on that matter.

MR. MC LAREN: Right. We have your representations in that regard. And we don't need to have a continuous series of questions and denials.

Mr. Jacobs, do you want to put your questions that you would ask on the record, or do you --

MR. JACOBS: I'd -- I would prefer to ask the questions and get answers. Otherwise --

MR. MC LAREN: Well, we've instructed -- we can't force him to answer if he elects not to answer.

MR. JACOBS: Well --

MR. MC LAREN: We've instructed him to answer. His attorney is instructing him not to answer.

MR. JACOBS: I just have to put on the record that this proceeding starts to become a farce if I can't get answers when there's instructions not to answer for which there's no legal basis. There's been no legal basis stated. The Panel is just telling me to move on.

MR. CAMPBELL: Mr. Jacobs, if we just stop the questioning at this point, then you have an opportunity to fully argue this. Do you have a problem with that?

MR. JACOBS: Well, given the parameters, I don't -- I don't see what else I can do. I think I just have to say again, this is completely unfair.

MR. CAMPBELL: So what I'm going to do --

MR. JACOBS: -- USADA elicited this

testimony knowing -- because Mr. LeMond brought his attorney here -- that he was not going to answer questions which were very likely to be

asked. If he didn't expect these, then his attorney wouldn't be here right now.

MR. CAMPBELL: Mr. Jacobs, why don't we stop this right now, and we can argue this later, okay?

MR. BARNETT: I -- I need to address that point.

We elicited this very relevant testimony with the hope that, on cross-examination, they would ask a reasonable level of questions. Knowing they may go to that subject, Mr. LeMond, who has had a litigious history with certain people, brought his attorney.

Our position is, the Panel gave them a reasonable chance to ask questions, and that is what we hoped would happen, and we think the evidence is relevant. Any suggestion that we brought him knowing that he wouldn't answer any questions at all not only misstates the record, but it's simply wrong.

MR. JACOBS: And I just have to respond to that.

MR. CAMPBELL: Thank you for that. We've -- we've got a short timeline here.

MR. MC LAREN: Go ahead, Mr. Jacobs.

MR. JACOBS: This is where arbitration, as a concept, fails in a case like this. Because in a civil lawsuit, we would have the right to depose a witness and find out what he's going to answer and not answer, and then we would file a motion in limine, and this would be kept out, rather than having this type of thing happen in the middle of a hearing. This is completely unfair.

MR. BARNETT: And we're clear that Respondents have made every effort to keep Mr. LeMond's testimony out. Every effort.

MR. MC LAREN: Well, Mr. Jacobs, we don't accept your proposition that the proceeding is unfair, and we will expect to see your written arguments on the testimony.

Mr. LeMond, we're terminating your examination.

A. Can I just say one last thing.

MR. MC LAREN: No, you can't.

A. It's relevant to the threat last night.

MR. MC LAREN: The matter is terminated. Thank you.

MR. MANNING: Thanks.

MR. BARNETT: May we call our next witness.

MR. BRUNET: Please, go ahead.

MR. BARNETT: We call Will Geoghegan.

MR. SUH: Mr. Chair?

MR. BRUNET: Yes, Mr. Suh.

MR. SUH: I would like to interpose one thought on timing here. Due to the matters we talked about within the -- within our conference, I think it would be appropriate if we had a little extra time.

MR. BRUNET: Are you referring to the scheduling issues?

MR. SUH: I'm referring to the matters that we talked about in conference, scheduling and otherwise, to allow adequate time and perhaps if we could take another witness in turn at this time.

MR. MC LAREN: Are you asking for him to have some legal advice, is that what you are asking?

MR. SUH: Yes.

MR. BRUNET: Mr. Barnett?

MR. BARNETT: My first question was going to be, Are you represented by counsel.

And if that's going to be the case, then, and it's not currently the case, we certainly understand and encourage him to get counsel.

MR. SUH: I can make that representation to the Panel, now, that he does.

MR. MC LAREN: I'm sorry. That he does what?

MR. SUH: That he does have counsel. Thank you.

MR. BARNETT: And counsel will be appearing so that we can call him later today or tomorrow?

MR. SUH: We simply have not had the time to address this issue. And it definitely needs to be addressed, so if we could take another witness.

MR. MC LAREN: Mr. Barnett, that would seem to be the best course of action. Do you want to get one of your other witnesses?

MR. BARNETT: That's acceptable to us. We may need a few minutes for Mr. Young to move his stuff.

MR. SUH: Mr. Chair, I would like to

respond to a question put to us earlier.

To the extent there's been any business relationship between Mr. Landis and Mr. Geoghegan, I would like to inform the Panel that Mr. Landis has made the determination that

Mr. Geoghegan's services are no longer required, and they've separated their agreement as of this moment. And so Mr. Geoghegan is now terminated from the previous position he's had with Mr. Landis.

MR. BARNETT: Can we clarify what that position is while we're putting this on the record?

MR. SUH: He had served in the capacity as business manager at times prior to today. I'm still not sure exactly what the status was as of the last minute, but we have decided to terminate all business relationships between Mr. Landis and Mr. Geoghegan as of today. As of right now.

MR. BRUNET: Seems fair. Thank you.

MR. YOUNG: Call Christiane Ayotte, Dr. Christiane Ayotte.

WHEREUPON,

DR. CHRISTIANE AYOTTE,

the witness herein, having been first duly sworn to state the whole truth, testified on her oath as follows:

EXAMINATION

BY MR. YOUNG:

Q. Dr. Ayotte, I'm going to ask you

some questions about IRMS analysis, and T/E analysis.

Could you briefly summarize for the Panel your experience in those areas?

A. I am the director of the doping control lab in Montreal, which is WADA accredited.

I have been -- and I'm a professor of the IRMS. I've been holding that post, that job, for the past 15 years; and before I was a research assistant at the IRMS working on an anabolic steroid detection and drug abuse detection and drug doping agent detection.

Q. Have you published in the areas of testosterone, epitestosterone analysis and IRMS?

A. I have. Our team published, and I have presented several lectures and conferences

on that topic.

Q. Have you ever served on a committee in the World Anti-Doping Agency?

A. I have been a member of the Harmonization Committee for a couple of months, and then I have served on the Health, Medicine and Research Committee until November 2004, and on the Lab Committee until November 24, when I resigned.

Q. November 24 of what year?

A. Oh, 2004.

Q. Okay.

As a member of the laboratory, did you play a role in the review of International Standard of Laboratories before it was published in August of 2004?

A. Yes, I did.

Q. And did you play a role in technical document TD 2004 EAAS, which is the document that talks about IRMS?

A. Yes, I did.

Q. And what was your role with respect to that document?

A. With respect to that document, I took the active role and I drafted, contributed

heavily, into the drafting of that document. I drafted it.

Q. Okay. And what was your role with respect to Technical Document 2003 Laboratory Chain of Custody?

A. I have been involved in -- as a member of the lab committee group of WADA.

Q. And the last document I'll ask you about is Technical Document MRPL having to do with which substances are threshold substances and which ones aren't?

A. Yes, I did.

Q. Okay. Did you play the role of scientific advisor for any international federations?

A. At the moment, and since 1995, I am the scientific advisor to the medical commission and a member of the medical commission of the IAAF, the International Track and Field Federation.

Q. When there is a positive test in testing by the International Track and Field Federation, what role do you play in reviewing laboratory documentation packages?

A. For the past 12 years, I've been

reviewing documentation packages that are forwarded to the IAAF. So when the medical commission, and when the doping controller is responsible for the anti-doping activities is asking me, I review documentation packages.

Q. And have you reviewed documentation packages from other laboratories involving IRMS analysis?

A. Yes, I do.

Q. How about T/E ratio analysis?

A. It's going along together, so I review many, several, many, I'd say, T/E elevated steroid profile and IRMS results.

Q. Okay. Have you reviewed the laboratory documentation package for Sample 995474?

A. Yes, I did: A and B.

Q. And -- and to make that easier, I'm going to call that the 17th Stage.

How carefully did you review it?

A. Well, very carefully.

Q. Have you reviewed other documentation that has been produced by the Paris laboratory in this case?

A. Yes, I did.

Q. And do you have an opinion --

Do you want to put our sign back up again?

And do you have an opinion on whether the results reported by the Paris laboratory on the 17th Stage sample are reliable?

A. Yes. I found that the IRMS results were consistent, of very good quality, and that the T/E value estimated and confirmed by LNDD was fully in agreement and coherent with the IRMS result. So it was -- I confirmed that it was reported on good scientific basis and ground.

Q. Does the Montreal laboratory have an IR- -- IRMS instrument called a PDZ Europa?

A. Yes, we do. Since -- since, I think, 1998, 1999, yes.

Q. And when your technician uses that instrument to do IRMS analysis, does your technician perform any manual integration of background and peak start-stops?

A. The analysts are instructed to perform manual intervention on background, to establish background subtraction or peak, to

determine peak as much as the field.

It is necessary to ensure accuracy of results.

Q. And is there any way that we could go back, looking at the Montreal documentation, and determine which peaks or which backgrounds your technician adjusted?

A. Not on the PD "Zed" Europa, you would not -- you would not have a trace indicating that manual integration, if I may use that word, was used.

Q. This is the International Standard For Laboratories --

What Exhibit is that, Jenny?

-- Exhibit 8, and it's Page 35 of that document.

We've heard from Respondents that the Articles 54413 and 54414 of the International Standard For Laboratories require -- I'll give you a second to find it.

A. I'm there.

Q. Okay.

-- require that all of the

adjustments made by the technician in the manual integration in the data reduction be tracked

somewhere. Is that correct under the International Standard For Laboratories?

MR. JACOBS: I'm going to object. That calls for a legal conclusion. That's the Panel's decision.

MR. YOUNG: I can rephrase it and say is that your interpretation of the International Standard For Laboratories?

MR. JACOBS: Same objection.

MR. BRUNET: Could you repeat the question from the beginning.

Q. Sure.

You have stated that you were involved in the drafting of the International Standard For Laboratories, correct?

A. Yes.

I'm asking you to look at these two sections of the International Standard For Laboratories and tell me whether the process, the manual integration process, at Montreal that is not recorded anywhere, except for the final results, would, in your opinion, be a violation of these two articles of the international standards.

MR. JACOBS: And I'll renew my

objection.

MR. MC LAREN: Mr. Jacobs, she's an expert.

MR. BRUNET: And she's also got knowledge of other work on the committee that did the drafting of this document. What's your objection?

MR. JACOBS: This is a legal conclusion. She's trying to usurp the Panel's role here. It's not an appropriate --

MR. MC LAREN: She's giving us her opinion as an expert. She's not usurping our role, although it is our role to make the determination at the end of the day.

A. That section -- I would like to bring your attention to the headlines of that section, which is, under 5.4.4.4, and it's Control of Data, and the subsection 5.4.4.4.1 is Data and Computer Security.

And the following five articles -- four articles are dealing with the safety of your computer system, and your -- the files in your computer system.

And what 5.4.4.4.1.4 deals with is the integrity of the files that are in your

computer and that has created or served to create the results.

So, for an example, what would be covered there would be if we were to reach a decision based upon a concentration of a given steroid on an Excel spreadsheet, that would be locked and saved in our computer, and someone does not have the right -- not anybody cannot access that data and alter the data.

So it's -- my opinion has to do when we are acquiring the data, when we are getting the information and the response from an instrument, we are creating the data. We are not altering records and reports into the computer system.

Q. Have you reviewed the controls that LNDD, the Paris lab, performed on the 17th Stage sample?

A. I have reviewed the -- the -- their method for the GC/MS and the GC/C-IRMS analysis, yes, I did.

Q. Okay. And did you find those controls sufficient to establish that the instrument was working properly?

A. I found that the controls used for

the IRMS methods were really up to the top of what we have in our field, so they were really good controls, fit for a purpose.

Q. Does it matter, from a scientific

perspective, what order the different controls are run? For example, whether you run the mix cal IRMS first, or the mix cal acetate first?

A. An analyst usually will follow a certain step of procedures, but if it happens once that two -- that they inject it in a different order, let's say, the acetate and the alkanes, that creates no problem. Creates no problem.

Q. Well, I was going -- I was going to ask you another question on the control of data.

Is it common in either IRMS analysis or GC/MS analysis for analysts to zoom in and focus on particular pieces of a chromatogram or particular ion traces?

A. That's -- if you want to improve the manual integration that has been done by an instrument, it's better to blow up, and have the zoom in so that you can see exactly what you are trying to do and to achieve.

Q. And would it be typical for the

analyst to make a copy every time they zoom in or zoom out?

A. I'd say that in reviewing most of the documentation package from the other lab, I have not seen tails of manual integrations.

We see the final results.

Q. When samples are put on the, I guess

it's called an auto sampler, is there any requirement in the International Standard for Laboratories that requires the samples to be run through automatically or consecutively?

A. The purpose of that being a automatic sequence would be when the circumstances are optimum to run that sequence overnight. But if the analyst is -- if the analyst is performing the assay and makes the calibration, the first controls, and if, in his opinion, the setup is not correct, then there is no reason to force the automatic sampling integration -- pardon -- the automatic analysis if the conditions are not optimum.

Q. Is there a problem if you run the controls and then finish preparing the athletes' sample and blank -- blank urines and run those later?

A. Absolutely not.

Q. Based on your review of the documentation, are you familiar with the mix cal acetate mix that the Paris lab uses?

A. Yes.

Q. Would you call that a positive control sample?

A. Yes.

Q. And why is that?

A. We have, here, a mixture of

standards articulated just as the method applied in Paris requires. And those standards have been certified for their actual precise isotopic content. Their delta value has been certified by a lab, and those standards, their delta values bracket the ranges of values that you would expect in normal human urine sample and samples coming from the administration of a prohibited steroid. So it contains the low values and the high values over that range.

So, in my opinion, this is not only a good positive control, it is a control ensuring the accuracy of the process.

Q. And by the ranges, the bracket arranges low delta/delta values and higher

delta/delta values?

A. Yes, I'm having this --

Q. Or delta values?

A. Yeah.

Q. Would there be any issue if in run- -- and let me ask you this -- when you looked at the documentation package for the Stage 17 sample, did you notice that the sequence was stability mix cal IRMS, mix cal acetate, and then three fractions: fraction 3 blank urine, athlete urine; fraction 1, blank urine, athlete urine; fraction 2, blank urine, athlete urine, and then they ran the mix cal acetate?

A. Yes.

Q. Would there be any problem if they were running two samples to do mix cal IRMS, mix cal acetate, take the first athlete's sample with athlete and blank urine fractions, take the second athlete sample with blank urine and athlete sample fractions, and then run the mix cal acetate at the end?

A. Not at all.

Q. Did you hear Ms. Mongongu testify yesterday that the Paris lab runs an internal standard -- I think it's 5 alpha andro-

stenediol --

A. Androstenol.

Q. Thank you.

-- to -- for the purpose of identifying retention times?

A. Yes, I heard her.

Q. Okay. And does the Montreal laboratory have an internal standard that you run for that same purpose?

A. It's good practice to add in each assay a standard to determine the relative retention time of your analytes, the substance that you will -- that you will wish to measure after.

It's common and very good practice, so we have the same -- as a matter of fact, we have the same substance as a standard for that purpose.

Q. And when you run that standard for retention times, do you quantify it?

A. It's not the purpose.

Q. You don't even run any quantification on it.

A. No.

Q. All right. And is that in any way a

violation of the International Standard For Laboratories?

A. But I'd say on the contrary, it's -- it's necessary to establish the relative retention time. It's a necessity; otherwise, you don't know what you are measuring, so ...

Q. But not the quantification?

A. Not necessary.

Q. Have you carefully reviewed the IRMS chromatograms in this case?

A. Yes, I did.

Q. And, in particular, have you carefully reviewed the chromatograms that have to do with the difference between the 5 alpha diol and the pdiol?

A. Yes, the 5 diol -- and the 5 -- and the beta diol, yes, I did.

Q. And the delta/delta -- I'm particularly interested in the difference between the 5 alpha diol, and the pdiol?

A. Yes.

Q. In reviewing those chromatograms, did you see any problem with peak separation?

A. Actually, the -- my overall comments on the documentation for the GC/C-IRMS as well

as the chromatogram were of very good quality, and that is based upon the fact that the fractions -- the simple preparation is very good.

The fractions are permitting -- and isolating fractions permit to isolate the steroids in a form that the chromatograms are not showing co-elution, the peaks are well-resolved, the baseline is good. So, the overall quality, the abundance of the peak is good, and it meets the -- it's in the region where the machine can have an accurate reading, so, the chromatography was good.

Q. When you say the baseline was good, does that have anything to do with matrix interference?

A. Yeah, baseline and matrix interference co-eluting peaks would be a problem, would be diagnostic of a problem, and I see none.

Q. Okay. Now, you just said that there wasn't, but I want you -- I want you to assume on a hypothetical chromatogram that there is some problem with either peak separation or matrix interference or both.

If that existed --

And this is Page 32 of the International Standard For Laboratories.

If that existed in some hypothetical chromatogram, would the existence of that peak separation or matrix interference be a departure or violation of the International Standard For Laboratories?

A. Again, I'd like to point -- to draw your attention to the title of that section. It is the 5.4.4.2, and that deals with validation of methods inside the lab.

So, and the purpose of that section, it contains general guidelines and general items that the lab, in the process of validating a method for its application in doping controls, must check.

So, the method to be fit for purpose must not show matrix interferences, and it must be specific, for example, and that -- that is for the general preparation -- the general validation of a method. It does not deal with individual test results that are produced afterwards. So, if, on -- given in certain circumstances, one day, once the validation has been properly done, if a lab obtained a result that shows some interference, that is not -- that is not a violation of the validation of the middle nor of the center.

Q. I will show you what is LNDD 0098, which is part of the ISO accreditation for the Paris lab, and would ask you to look at method EC 31.

A. I see it.

Q. What does this mean --

MR. MC LAREN: Just a moment.

MR. BARNETT: Exhibit 26.

MR. YOUNG: Exhibit 26.

MR. BRUNET: You have the exhibit number, Mr. Young?

MR. YOUNG: It's 26 and Page 0098.

Tell me when we're ready.

MR. MC LAREN: We're there.

Q. Okay.

What does it mean when you see this method listed in the ISO accreditation, this method EC 31?

A. EC 31 is the method that is for the determination -- I'm -- I'm translating, because it's in French -- for the determination of the origin of metabolites and precursor of the testosterone by GC/C-IRMS, delta carbon 13 -- because it has been specified -- and the following rows are just the extraction procedure and the utilization of the IsoPrime MicroMass.

So that means, since that method is under -- false under their scope of accreditation, it has been audited and -- meaning reviewed carefully by auditors, and the paperwork has been reviewed, and it has deemed to be -- it was deemed by the ISO inspector to be -- to be following the good quality management principle and the quality of a method following ISO. It has been found to be compliant with 17025 criteria, the norm.

Was that clear? I'm sorry. I fumble.

Q. I understood. I'm going to ask you to look at Exhibit 9, please.

And when you get there, go to Page 3 of Exhibit 9.

Are you ready?

Panel ready?

Are we ready?

MR. MC LAREN: Yes.

Q. Okay. Exhibit 9 is the technical document, TD2004EAAS?

A. Yes, it is.

Q. And your involvement with that document was what?

A. I am -- I was involved as a member of the WADA Laboratory committee, and I drafted a lot of that document.

Q. Okay. When you look at the paragraph that starts with the Results, in the second line, Value Measured for the Metabolite, and then it has a paren S, was the paren S used on purpose?

A. When the WADA Lab committee -- we selected very carefully each word, so when we wrote metabolite, paren, S, that was on purpose.

Q. And what was that purpose?

A. The purpose was to state that the administration of a steroid could be supported by a delta value for either one metabolite or seven metabolites, depending on the situation, significantly greater than 3 delta units.

Q. When you say "significantly greater than three delta units," you mean it has to be significantly greater than 3 delta units, or is

3 delta units a significant difference?

A. Three delta units was the significant difference that we felt was to be written in that document, so three is three.

Q. So when you look at the results from

the 17th Stage, if all we had were the differences between the 5 alpha diol and the pdiol greater than 6, would that be a positive test under this criteria?

A. It would certainly be, as a difference of 6 delta units, is a highly significant difference.

Q. And we heard Ms. Mongongu say yesterday that the criteria that the Paris lab applies adds an uncertainty on top of 3. So if it's over 3.8, then they will report it positive. Is that required by the International Standard For Laboratories?

A. It is not required.

Q. And with this International Standard For Laboratories criteria, was the Paris laboratory required to go out and do any studies that supported the one metabolite, 3 delta unit difference?

A. The purpose of such document is not

to promote research. It's to give, as the titles say, and it is said: This document has been prepared to ensure that the lab can report, so those are guidelines.

It's not, Please, start thinking about this. It's really something that we -- that we put in place and that we would like to be followed.

Q. Would this sample have been declared positive in the Montreal laboratory?

A. Definitely.

Q. And why?

A. The differences in the delta value of the alpha diol from the reference urinary steroid is so very clear at 6 delta units that it's really a no-doubt situation.

I consider, as well, that the difference between androsterone and the 11 Ketoetiocholanolone used as the reference steroid is significant in both cases as having been measured and determined at a minus 3.99 and minus 3.51.

Q. There's been a claim in this case that the 17th Stage sample was degraded, and we're going to talk about that in a minute. But

even if there was sample degradation in the sample, would that affect the IRMS result?

A. There was no sign of degradation, and we know that the effect of microbial contamination does not produce -- it does not generate the diols, and it does not generate any of the analytes that were under analysis at the lab at the moment.

So, we are -- we can -- we can refute the fact that diol samples had been degraded. Those results would have been produced by the degradation.

Q. Another quick question related to IRMS.

Does the measurement of specific gravity have anything to do with the validity or accuracy of an IRMS result?

A. Specific gravity -- specific gravity is not involved at all in any of the IRMS decision or result.

Q. Is the -- is there anything in the International Standard For Laboratories or any of the technical documents that says you can't, or you shouldn't, do IRMS analysis unless you have the T/E ratio greater than 4 in the T/E

side of the analysis?

A. Not at all.

As a matter of fact, we have been more and more frequently -- "we," meaning the network of labs, have been requested more and more frequently to run directly IRMS on samples. And if we want to consider this standard, per se, it says that any result, any reason, that the lab would deem -- that the lab would feel is necessary to run an IRMS analysis is fully acceptable.

Q. Okay. Let me switch to a slightly different topic.

You said you were on the laboratory

committee when the technical document on the chain of custody was published by WADA?

A. Yes, I was.

Q. Have you carefully reviewed that technical document?

A. Yes, I do.

Q. And have you carefully reviewed --

A. I did. I'm sorry.

Q. And have you carefully reviewed the chain-of-custody documentation produced by the Paris laboratory?

A. Yes, I did.

Q. In your opinion, does the chain-of-custody documentation produced by the Paris laboratory meet the requirements of the International Standard For Laboratories and the technical document on chain of custody?

A. Yes, it does.

Q. Your Montreal laboratory chain of custody was used as an example in -- in one of Respondent's briefs as to how it should be done.

Do you have any issue with the fact that the Paris laboratory has -- and -- and -- and we'll take a step back.

Your document has a bottle chain of custody all on one piece of paper; is that right?

A. We have a -- our document -- and --

and, yeah. Our document was -- that was produced has been extracted without -- not -- not without us knowing this.

It has been extracted from a documentation package, and that chain of custody form in our lab includes the movement of the A and the B bottles -- the B bottles as well as the first aliquots.

Q. And it shows it on one piece of paper.

A. It's on one piece of paper.

Q. And the way Paris does it is in multiple pieces of paper.

A. Yes, the way Paris does it, it is -- it's in multiple pieces of paper, yes.

Q. Is your way better than their way or vice versa?

A. Not at all.

If you look at the technical document, it is said that the chain of custody can -- is not obliged to be on one form -- separate form. It can -- the chain of custody is a record of all of the forms. The purpose has to be met. We should be able to track the custody and the location of the bottles and the aliquot, as well as the documentation, from the moment that the lab received the bottle to the end of the process.

Q. Okay. As long as the documentation tracks who had possession at different times, does there need to be a piece of paper that says A transferred to B, B transferred to C?

A. As a matter of fact, if you look at

our own chain of custody that was produced, we do not indicate all the time the transfer from one individual to the other one.

So, I -- I -- if we are -- so even in our form, we do not say that Mary Ann would give it to John, would do this -- so if -- the important thing to -- that has to be recorded is who had the possession, who was -- who had the possession of the sample or where it was located in the secure area when not in someone's possession.

MR. MC LAREN: Dr. Ayotte, could you just point us to the language in the technical document that you're referring to?

A. Do we have the --

MR. YOUNG: I can put it up.

It's 102 and -- could you bring up 102, please?

MR. BRUNET: Is that the Exhibit 102?

MR. YOUNG: Yes, it is or -- I happen to have a copy of it at GDC 0233, and I'll -- let's focus in on this section right in here.

A. Do you want me to read it?

The Laboratory Internal Chain of Custody is documentation, parentheses, (worksheet, logbooks, forms, et cetera) that records the movement of samples, and samples of aliquots during analysis. The Laboratory Internal Chain of Custody does not require a separate form. Within the lab, the international Laboratory Internal Chain of Custody shall be a continuous record of individuals in possession of the sample or sample aliquot. When not in an individual's possession, it should be documented that the sample or aliquot is within a controlled zone -- zone. Continuing, The sample or aliquot must be in an individual's possession when in -- when in an uncontrolled or unsecured area of the lab."

MR. YOUNG: Okay.

Is that what you were looking for, Mr. McLaren?

MR. MC LAREN: Yes, thank you very much.

Q. Okay. Now, I'm going to switch to a completely different topic.

We've just talked about IRMS, and I'm going to ask you questions very briefly about the Paris laboratory's T/E ratio analysis.

Have you reviewed the sections of the laboratory A and B documentation packages having to do with the T/E ratio confirmation A and B?

A. Yes, I did.

Q. And frankly, have you reviewed all of the laboratory documentation having to do with T/E and T/E ratio?

A. Yes, I did.

Q. Are you comfortable that the T/E confirmation values in the range of 11 are corroborating evidence for the IRMS results which we've seen?

A. Yes, I am.

Q. And are you troubled at all by the fact that the T/E screen value was in the -- I think it's a 4.9, 5-ish range?

A. Well, the number written is 4- -- 4.7, but it's obvious, from looking at the chromatogram produced for the analysis, that the epitestosterone peak has been taken too wide by the -- by the baseline and by the integration because there were interference in that region. So, if we look visually, it's more close -- it's

closer to an 8 or a 9 than it is to a 4 or a 5.

Q. And why is that? If the epitestosterone peak is too big, what does that do to the T/E ratio?

A. The way that the -- because of the interference, the peak was too wide, and it was not only composed of epitestosterone; so the -- so the actual level of the epitestosterone measured in the screening was overestimated by the screening -- by the integration done; so, as an effect, it lowered.

THE REPORTER: By the?

A. By the integration done. So as an effect, it lowered. If epi is bigger, then the T/E ratio is lowered.

Q. Okay. Now, let's talk about sample degradation. Can you see -- you said you didn't see any evidence of sample degradation in the 17th Stage sample.

A. There is no evidence of sample degradation. The effect of microbial degradation are well known by us. The process has been well described, and we took part in it in the technical document.

So the -- the effect of microbial

degradation will degrade, actually, the steroids; they will not form the steroid -- it will not form the steroids.

The -- we have -- the first sign

would be the presence, the significant presence, of steroid in the free fraction, and other signs would be the -- when the substances are degraded --

Q. But --

A. -- others are formed.

Q. Let's stop right there on the significant presence in the free fraction, and then I'll go back into the other pieces.

I'm looking at the second page of the technical document 2004 EAAS --

Which we decided, Jenny, was Exhibit 9.

-- and if I understand Respondent's argument correctly, what they're saying is, in the B sample, that the amount of free epi detected, 0.44 nanograms, was more than 5 percent of the total epi?

Since you were involved as the drafter of this document, does that make any sense to you?

A. I guess that if you just have a look at the chromatogram on which -- on which this .44 nanogram per mil was -- was derived of the thing, you will see that there's no peak there. It's not any peak, a testosterone peak; it's just a blurb.

THE REPORTER: A blurb?

A. A blurb, yeah. It's just this very, very small -- there is no epitestosterone in the free fraction.

Q. Do you or any other WADA Laboratory whose documents you've reviewed have the ability to accurately identify free epitestosterone or any epitestosterone in a quantity that low?

A. Yes, we can identify it, but it would be a peak. That is not a peak. So, the -- the number given by the machine is -- it relates to nothing, as it is not a peak. It is not epitestosterone.

Q. Is there any evidence of degradation in the testosterone?

A. No, there was no evidence of degradation in the epitestosterone free fraction.

Q. In fact, I'm talking testosterone,

not epitestosterone.

A. I'm sorry. Testosterone, yup.

Q. And what are the other, in -- in addition to the free fraction, what are other things that you would expect to see if a sample was degraded?

A. Actually, as it is summarized in the technical document, the effect of microbial degradation are really important on the overall quality of the steroid profile. It could be totally changed, totally altered, and you would have signs of formation when you -- when the substance -- the natural steroids substances are being degraded, you will form other peak -- other substances that we call the 5 alpha, and the 5 beta androstenediol and those would show up on your chromatogram, and they did not.

MR. BRUNET: Mr. Young, we're going to take a ten-minute recess.

MR. YOUNG: Okay.

(Brief recess taken.)

(Recess taken from 3:41 to 4:10 p.m.)

MR. BRUNET: Welcome back, Mr. Young, Dr. Ayotte.

I want to remind everyone that we are ending today at 5:00 sharp.

Q. Dr. Ayotte, let me show you what is LNDD Page 0085, and that is in Exhibit?

MS. SLOAN: 26.

Q. 26.

MR. JACOBS: What was the number again, Rich?

MR. YOUNG: 0085.

MR. CAMPBELL: What Exhibit?

MR. YOUNG: 26.

Q. And is method EC24C, the Paris laboratory's T/E and T/E ratio method?

A. Yes, that is appearing under this code of accreditation of the Paris lab.

Q. And what does it mean that that method has been accredited by ISO?

A. It, again, means that it has been audited. It has been -- all of its aspects has been audited by ISO personnel, including how the lab personnel conducted the analysis, and it was deemed to be compliant with the Norm 17025.

Q. In Respondent's pretrial discovery brief, there was an Exhibit 49, that listed what Simon Davis called various errors and other

mistakes that have been made by the Paris laboratory in analyzing the A and B samples.

Are you familiar with that exhibit?

A. Yes, I am.

Q. Have you spent much time looking at the exhibit and then going back into the documentation?

A. Yes, I did -- yes, I did, mm-hm.

Q. Are there claims in that Exhibit 49 that you simply disagree with?

A. Yes.

Q. And are there other aspects of that Exhibit 49 that deal, for example, with nonforensic corrections?

A. Yes.

Q. Having carefully reviewed the

documentation package and everything that is set forth in Exhibit 49, if it doesn't fall in the category of things you strongly disagree with, is there anything there that would have caused the positive IRMS finding in this case?

A. No.

MR. YOUNG: I have no further questions.

MR. BRUNET: Thank you, Mr. Young.

Mr. Jacobs.

EXAMINATION

BY MR. JACOBS:

Q. Good afternoon.

A. Good afternoon.

Q. Do you have a retainer agreement with USADA related to this case?

A. No.

Q. Are you being paid for your time?

A. No.

Q. Are you billing USADA for your time?

A. No.

Q. How much time have you spent reviewing the laboratory documents in this case?

A. Many hours.

Q. Approximately how many?

A. I'd say 20, 30 hours.

Q. Approximately how many hours have you spent reviewing the legal briefs in this case?

A. I read the briefs, twice -- I don't know.

Q. Your best estimate?

A. Well, I'd say two or three hours.

Q. Are you the head of the

WADA-accredited laboratory in Montreal, correct?

A. Yes.

Q. And that lab does nothing but sports drug testing, correct?

A. Well, we do research. It's a university research lab.

Q. But the majority of what you do is drug testing in sport, correct?

A. Yes, correct.

Q. Focusing on the drug-testing work that you do, can you give us an estimate as to what percentage of that work deals with sports that are governed by the World Anti-Doping Code?

A. I would say we do about 15,000 tests per year, and out of those, the majority is with the North American professional sports, and the -- I'd say, one-fifth would be with WADA sports and WADA agencies.

Q. So about a few thousand tests per year for those sports governed by the World Anti-Doping Code?

A. Yes.

Q. And on -- on top of the drug testing you do, you're -- you are sometimes asked to attend B sample tests for sports federations,

correct?

A. Yes. Yes. I remember, mm-hm.

Q. And --

A. Yes, I did at least twice, yes.

Q. And you mentioned you've done that for the IAAF.

A. Yes.

Q. And do you get paid when you do that?

A. They only reimburse my per diem and travel expenses since I'm a member of their medical commission. It's been a vol- -- volunteer work.

Q. Have you ever been hired by an athlete accused of a doping offense to attend a B sample as a witness?

A. No.

Q. In fact, you'd be prohibited by the WADA Laboratory code of ethics from doing that, would you not?

A. I'd say so, but I was never approached.

Q. But if you were approached, you would be prohibited by the laboratory code of ethics; is that correct?

A. I don't know if I would be prohibited to attend the B sample, but I would be certainly prohibited from acting on behalf of an athlete to fight a -- to fight a doping allegation.

Q. You'd be prohibited from testifying for an athlete in a proceeding just like this, correct?

A. I would say so, and I would not do this.

Q. That's because the WADA code, the laboratory of ethics, says you can't do anything that casts doubt on the integrity of the anti-doping system, correct?

A. And -- yes, and assisting -- assisting -- let's say, the global picture is either the involvement when entering doping, giving assistance to, giving information to evade doping would be also prohibited, yeah.

Q. So even if you -- if an athlete asked you to look at a laboratory document package, and you saw significant problems with it, you could not come into a proceeding like this and testify about those problems, could you?

A. Well, I'd say I -- I would not. But may I say that my role would be, if I were given a documentation package that showed problems, that showed the results are not good, that show any problems that could have altered the lab decision in reaching its decision that we had an adverse finding, I would certainly find a way to inform the responsible testing authority of that problem. I would get involved, yes.

Q. But you couldn't get involved by coming and sitting in a witness chair in an anti-doping hearing, like this, and testifying about those problems if an athlete asked you to do it, could you?

A. No.

Q. I'd like to mark as the next GDC exhibit -- it will be GDC 1354 --

If we can get that up on the screen?

This is a 2005 article, correct, if you look down at the bottom, see the Web address, 2005?

A. Yes.

Q. And that's a picture of you?

A. I have to say yes.

Q. If you can zoom in on the fourth

paragraph, please, just the fourth paragraph.

Can you translate the fourth

paragraph for us, here?

A. Yes.

The fight against doping also got political dimensions, economics and legal that Christiane Ayotte cannot ignore. When athletes and rich American lawyers are fighting -- how can I say -- fighting to combat or to discredit the validity of the tests and the controls, we have interest to being creative --

MR. BRUNET: Creative.

A. -- creative, and as those judges and lawyers are -- are betraying those legal proceedings, you have to be able to give the information in layman -- layman terms. Yes?

I have not written this article, 'eh?

Q. I want to make sure that I have the correct -- the correct interpretation of the second-to-the-last word in that paragraph: Vulgarser. Can you tell me what that means?

A. Express yourself in labor -- layman -- express science in layman terms.

Q. And can I get confirmation on that?

MR. BRUNET: Oh, absolutely, although I'm not an interpreter, but that's what I have been taught since I've been 4.

Interpreters in the room, can we get a nod of a yea or a nay? And she notes that it's a yea.

MR. JACOBS: Thank you.

And I hope by rich American lawyers, you weren't referring to me.

A. No. Are you? How much are you getting paid?

MR. BRUNET: Counsel, you don't have to answer that question.

MR. JACOBS: I don't have to answer that question.

Q. Have you had any communications with WADA about this case?

A. With WADA?

Q. With WADA?

A. As WADA -- WADA, as far as I know, is not involved in the case. I have not discussed this case with them.

Q. So WADA never expressed to you that it might be beneficial for you to speak to the media about this case?

A. No.

Q. But you have spoken to the media about this case, have you not?

A. Yes, I did.

Q. If I can mark as the next exhibit -- it's an October 13 Chicago Tribune article, which has actually been marked as G01353.01 and .02.

This is one of the articles written about this case in which you publicly commented, correct?

A. Yep. In October 2006, I see it.

Q. At the time that you made these public comments, had you reviewed all of the laboratory documents in this case?

A. I had gone through what was available on the Web.

Q. Was that the full laboratory document package?

A. Part -- parts of it, yes.

Q. Had you gone through it in detail?

A. I had gone through it, yes, through the -- particularly, with regard to the -- the IRMS results, and the -- yeah, what I referred to as boo-boos.

Q. And that's on the second page of the article where you said a few boo-boos and hundreds of pages of documents is not enough to say the case goes into the wastebasket?

A. Yes.

Q. Is there anything in particular that you were referring to there when you were talking about a few boo-boos?

A. If I remember correctly, that was when it was pointed out that the -- there were mistakes with regard to -- with regard to the sample numbering or to typos -- that were typos in the documentation.

Q. So, at the time that you made that statement, you certainly weren't referring to any chrom- -- chromatography issues; is that right?

A. No.

Q. No, you were not referring to chromatography issues?

A. No, I was not referring to chromatography.

Q. You were primarily referring to the misnumbering in the documents, right?

A. Yes.

Q. You spoke a little bit earlier about chain of custody --

A. Mm-hm.

Q. -- in connection with this case? And you would agree, LNDD, at least from the documents you've seen, they don't document where the sample bottle is at all times, do they?

A. I was able to go through the documentation and get the information with regard to where the bottle was and who had custody.

Q. You would agree, would you not, that you can't do chain of custody by memory. It has to be documented?

A. Of course.

Q. So, it's not sufficient to come into an arbitration like this and simply say, I remember that at such and such a time the bottle was in such and such a location. That has to be documented, correct?

A. Well, if you go to the definition of the chain of custody in the document, it is said that the chain of custody is composed of documents and records and testimony.

Q. So it would be okay for gaps in

chain of custody to be filled by someone's memory from what would now be nine or ten months ago?

A. According to the technical document, yes.

Q. As long as that person has a really good memory, right?

A. Yes.

Q. It's better to have it documented, isn't it?

A. Yes.

Q. You were speaking a little bit earlier about some of the IRMS issues that -- dealing with positivity criteria. I had a few questions about -- about your testimony on that.

With the injection sequence on the IRMS, you said that it doesn't matter what order or sequence you do the injection?

A. No, this was not the question.

Whether -- the question was whether two -- the mix cal or the mix acetate were interchanged.

Q. But you would certainly agree that if -- if a laboratory has a procedure for a standard injection sequence and they differ from

that injection sequence that they usually follow, that that's something that you should look at closely?

A. You are fully entitled to change something in the procedure as long as it is recorded, and that is how it is written in the standard.

Q. As long as it's recorded how?

A. As long as you can visually understand what has been done. So if, in a case, they would inject the -- they would inject 5 samples, and that was the example book brought forth by Mr. Young. If you would inject one athlete's sample, and then you decide to inject another athlete's sample, it would show up in the recording of the sequence of events, and that's okay.

Q. And that sequence of events you're talking about, that should be something in the laboratory document package, correct?

A. Yes.

Q. It shouldn't be something that you have to go get from some other source, right?

A. It isn't a record. It is in the lab. If the lab did not put it first on the

documentation package, you can ask for information and get the information.

Q. But you certainly wouldn't expect to create that based on the memory of a laboratory operator, would you?

A. The -- you mean the way that -- the way that the samples were injected?

Q. Right.

A. That's also in the record of the instrumentation with dates and hours.

Q. Do you know if LNDD had a standard operating procedure for an injection sequence as far as an order that they do the injection on IRMS?

A. Oh, I'm afraid I don't remember specifically.

Q. But if they had, in their SOP, a standard injection sequence, you would expect that they would follow that, correct?

A. Yes. And as I said before, if they modified something, they have the right to do so for a given circumstance, as long as it is recorded.

Q. You mentioned that in your lab, the
IRMS instrument that you have is a -- I think

you said TZ Europa?

A. No. PD "Zed" Europa. We have two,
actually.

Q. P?

A. PD "Zed" Europa.

Q. What software do you use with that
machine?

A. With the -- well --

Q. Or machines, I should say.

A. I don't -- this machine, I don't
know. PD "Zed" Europa, I don't have the name of
the software. I'm not the one operating the
machine.

Q. So you don't know what the software
is --

A. No.

Q. -- that it runs on?

A. No.

Q. Now, you were in the courtroom some
of yesterday and the day before, I guess, when
Ms. Mongongu testified, correct?

A. Not for the entire duration.

Q. Did you hear her testify about
matrix interference in some of the runs?

A. I'm afraid not.

Q. Were you present when Ms. Mongongu testified that the internal standards could not be accurately measured because of matrix interference?

A. I don't remember exactly, but I know what she means -- what she meant.

Q. And you understand that was her testimony, right?

A. Well, I have to -- yeah. You say so, so I trust this is what she said.

Q. And if that was her testimony, then you -- you certainly can't say that all of the chromatograms are perfect, can you?

A. No, that has to do with the first portion of the chromatogram where the 5-alpha -- the 5 androstenol is diluting their standard for undermining the relative retention time. But when I'm testifying, when I said that the matrix interference and quality of the chromatogram was good, it was in the region where the peak, the analytes of interest, were, but that, in that part of the chromatogram, we could see that we have many peaks there.

Q. So you weren't looking at the internal standards at all?

A. When I review the data, no.

Q. Okay. Do you think that those internal standards have any relevance to this case at all?

A. Well, no, because -- well, they have the relevance for the lab to establish the right retention time. It's important to know when the analytes are eluting from the column, at what time. And so that internal standard is not involved in the calculations to get the delta values or the delta/delta.

Q. It sounds to me like you're saying the internal standard has a very, very limited purpose in this analysis. Is that your testimony?

A. That standard has a very limited -- yeah, it is not involving, the -- it is not involved in the determination of the delta value or the delta/delta values.

Q. So just so I can be clear as to what your testimony is: In this case, the IRMS analysis, what is the purpose of the internal standard, in your opinion?

A. In that -- in their procedure, that standard, that, as a matter of fact, is added

after several steps of the preparation, is used to establish the relative retention times.

Q. So if there's problems with the internal standard, you're saying that that doesn't matter in the analysis?

A. No, because the -- that standard is not, again, involved in the calculation.

Q. If you can put Exhibit 8 up on the board. The ISL, and go to Page 32.

And if you can go into section 5.4.4.2.

And zoom in from 5.4.4.2 down to the bottom.

Now, it was your testimony -- correct me if I'm wrong -- that 5.4.4.2.1 on matrix interference, only says that, on validation, you have to establish that, during the validation period, that you can deal with matrix interference. Was that your testimony?

A. This is not what I said.

I said that the section was dealing with validation of method, and that it was important to be fit for purpose that the method employed and developed by the lab would be checked for specificity, identification,

capability, robustness, carryover, matrix interference and standard.

My testimony was that if there is, at one point, a matrix interference in the course of the testing, that does not make it a violation of the standard.

Q. It just might make it inaccurate,

right?

A. If you are -- yes, exactly. Yes.

Q. Just so that I can be clear, when you're looking at a laboratory document package for what was actually done on the case, certainly you want to check specificity, correct?

A. Well, we have to -- no. When we were looking at the documentation package, we don't get to verify the validation done at the lab. We want to make sure that the lab has given a result which is -- which is specific, which is accurate.

Q. Okay. But setting aside the validation process for a moment, and talking about the actual analysis, the -- in the analysis, the lab -- just going through these bullet points, the lab still has to show that

they properly identified the substance, correct?

A. Correct. That is why there's the purposes of having controls in the assays as well.

Q. And during the analysis, the laboratory still has to demonstrate that there was no carryover, correct?

A. Yes.

Q. And during the analysis, the laboratory still has to demonstrate that there

was no matrix interference, correct?
A. Correct.
Q. And if there is matrix interference in connection with the analysis of the sample, that affects the accuracy of the results, correct?
A. Of course.
Q. And of course, if there's carryover in the analysis of the sample, that affects the accuracy as well, correct?
A. Yes.
Q. So these points here don't just go to validation; these are also things that you need to look at in the analysis.
A. Yes.

Q. You also mentioned the issue of sample degradation, that it would not affect the IRMS results?
A. Yes.
Q. Are you saying that degradation cannot -- cannot -- affect the isotope -- the isotopic ratio?
A. Well, no, it cannot.
Q. It absolutely cannot, under any circumstance?
A. Well, we have -- we have looked for the effect of bacterial degradation on -- on delta values, and we have not found that they

had a significant effect. And we have also work about, of other committees who came to the same conclusion.

Q. What are you -- what "we" are you talking about? Your lab, or the general "we" being all of you lab directors together?

A. My lab, and I remember at least one publication from the lab in Sydney addressing -- one communication addressing the effect of microbial degradation.

Q. And so your opinion is that there's no circumstance under which degradation can

possibly affect isotopic ratio? That's your testimony?

A. I would say that as far as we went in verifying that process, we have not seen an effect on microbial degradation.

Q. My question was a little different.

My question is: It your testimony that there are no circumstances under which sample degradation can possibly affect isotopic ratios?

A. And my question is -- and my answer would be that if we were to see a severe effect of bacterial degradation that would cause the disappearance -- the disappearance of the analyte, the androstenediol for one would be degraded, the androsterone would be degraded, and that would show on the profile.

And that's not the case. And we have not -- when you have a minor degradation, that was shown to not alter the delta values.

Q. So then it is your testimony that there is no possible way that sample degradation can affect the isotopic values?

A. As far -- as long as that's coming with the asterisks, which is as far as the

steroid profile is intact and is not showing sign -- any signs of degradation. If your molecules are totally digested, then, of course, it will alter the delta values. It will alter your capacity to detect and measure those substances.

Q. Well, so you're saying it depends on how much degradation there is?

A. No. This is not what I say.

I'm saying that if you are having heavy signs of degradation, your -- your -- the amount of analyte will be sufficiently reduced, that it may alter your capability to effectively determine accuracy, for example, if the androstenediols are being digested, they were -- their concentration would reduce, and then you could have the difficulty in measuring the delta values.

Q. So if the bacteria is, for lack of a

better word, eating the androstenediols, then that would affect the isotopic values, correct?

A. It would alter the chromatogram, it would show sign, and it could alter the delta value and your capacity to measure.

Q. Okay. So then sample degradation

can, actually can affect the isotopic values, right?

A. It can affect your -- how can I phrase this? It can affect your capability to reliably measure the delta values, as well as steroid profiles, yes.

Q. That's the same thing, right? I mean, what you're saying is that degradation can affect the isotopic values, right?

A. Well, yes.

Q. Now if we can go to the technical document, TD2004EAAS.

MR. BRUNET: Would that be Exhibit 9?

Q. Can you put Exhibit 9 up on the board?

Can I just ask -- for the record, it appears that the attorney was speaking with the witness. Was that something other than just handing her the exhibit?

MS. SLOAN: No, and I didn't even hand her the exhibit. She found it on her own.

Q. Okay. Now, this technical document,

this is the positivity criteria that WADA set for, among other things, the IRMS analysis, right?

A. Yes.

Q. And in this document, WADA is telling the laboratories what the minimum positivity criteria is, right?

A. Well, it's giving reporting and evaluation guidance, yes.

Q. And providing guidance on how to perform the IRMS test as well, correct?

A. Well, there is a part of it, I'm -- we can not qualify that one paragraph as giving that many indications, but it does give the, the reporting criteria.

Q. Notwithstanding the fact that WADA went to great lengths to prepare this document -- I'm just going to set this here -- you would agree that the laboratory still has to carry out validation to show that its testing can be done in accordance with what is set out on this technical document, right?

A. Yes.

Q. So the fact that WADA has validated the method, if you will, doesn't relieve the laboratory of the burden of doing their own validation?

A. WADA has not validated the method.

Q. And then specifically the delta/delta value difference, the 3 per mil that you were talking about earlier, just because WADA established a -- as you said, a 3 per mil delta/delta difference as a positivity criteria, doesn't relieve the laboratory of the burden of establishing that it can accurately quantify within that range, correct?

A. That's exactly what they should do.

Q. Just like you would on any other test, right?

A. Yes.

Q. Because you have to show that, or the laboratory has to show that what they're reporting is within acceptable limits of uncertainty, right?

A. Yes, that's the goal. This is the Harmonization factor.

Q. So just so that I can be clear, even after this procedure is transferred to a lab, let's say, for example, that LNDD had a different procedure before this technical document was issued, once the technical document is issued, they still have to validate their ability to comply with that technical document?

A.   Yeah, the ISL, and the technical documents should be incorporated or should be taken into account in the quality system and the methods of the labs.

Q.   And you would agree that even after, even assuming that a laboratory does the appropriate amount of validation and the IRMS test, a positive result is only as good as the chromatography of the laboratory, correct?

A.   Yes.

Q.   And you agree that good chromatography is essential to accurate IRMS results, correct?

A.   Correct.

Q.   Now, in this case, you were not present when LNDD actually ran any of the tests, were you?

A.   No.

Q.   So you have no personal knowledge of when or how they started and stopped the injection sequence, do you?

A.   No.

Q.   And you have no personal knowledge of when or how they reran controls, do you?

A.   No.

Q.   You have no personal knowledge of when or how LNDD reran mix cal acetates, do you?

A. Well, as much as they record -- are you referring to the documentation package? The sample, the adverse analytical finding of the 17th Stage?

Q. I'm talking about your personal knowledge, not what you read, what you actually saw?

A. I was not there. I did not do the test nor watch it.

Q. But you did hear some of the technicians come into this proceeding and talk about how they -- let me start over.

Did you hear some of the technicians in explaining some of the log file entries provide explanations based on their memory as to what happened, correct?

A. Well, I'm afraid I was not in the room while that has been going on.

Q. Okay.

A. And I have not looked at the log entries of the electronic record.

Q. Why not?

A. I had enough reading to do.

Q. If the log file entry showed that LNDD had rerun mix cal acetates, would that be something that would interest you?

A. Well, I'm afraid we do this regularly.

Q. But you would have to have a reason for doing it, wouldn't you?

A. Yes, if we -- if the labs, as I said before, those are the controls that the labs, that the labs are incorporating in the starting of the sequence of the analysis. So in the course of the sequence, if you notice that something is getting wrong, then not only -- you should, you should stop and make the necessary arrangements, and you could, well, reinject something, if once the, whatever, troubleshooting that needed to be done has been done.

Q. When you do that, in your lab, or when your technicians do it, when you see that something isn't going right and you reinject, don't you note it in the document package?

A. No.

Q. Really? You just start all over, and there's no document trail at all?

A. For some data, we have a standard of performance of the analytical instrument. We would inject it, and if it's not of quality, we would change the liner and inject the performance in a row, maybe one time, two times, three times, and we would just overwrite the files.

Q. If the log files showed that LNDD

stopped in the middle of a sequence to fix particular things, would that concern you?

A. You are talking about the electronic recording --

Q. I'm talking about the log file.

A. -- from the instrument and if -- yeah -- no -- that's something we do.

Q. And you don't document that at all?

A. No.

Q. Well, how is an independent analyst, someone that's actually independent of WADA, supposed to be able to look at a document package and see what was done if you are not keeping any records of it?

A. The purpose of the documentation package is to provide the information that would enable a competent expert to support or not

support the conclusion reached by the lab. Now, the setting of the instruments, the calibrators, the performance standards, if the lab has been reinjecting them to achieve the quality, the high quality that they wanted to reach, it's nothing that should concern us.

Q. The purpose of the lab document package is to allow an independent expert to see what was actually done, right?

A. To see -- to check what is, if what is provided, permits to reach a conclusion --

Q. No, no --

A. I'm sorry.

Q. -- it's not, the purpose of the document package isn't to provide --

MR. YOUNG: Wait, you just cut her off mid sentence.

A. I lost my train of thought. Go ahead.

Q. Could you read it back?

(Reporter read back the answer.)

A. To reach the conclusion that the results provided are supporting the conclusion that was reached by the lab. And I will repeat. What the lab has done before, whether they

changed the -- whether they filled the internal standard, whether they changed the liner, whether they overwrite their calibration, their verification standards is absolutely of no relevance.

Q. So what you are saying is it's perfectly acceptable for a laboratory to run things over and over and over again until they get the results that they happen to think are suitable for their purposes?

A. Is this what I said, sir?

Q. I'm asking you, is that what you are saying?

A. No, this is not what I said.

I was talking about setting up the condition of the instrument and the analysis. That could be repeated. I'm not talking about reinjecting athlete's samples and playing with it, as much as we can, and overwriting files. I'm only focusing on the setup of the instrument to reach the level of quality that is now fit for receiving and analyzing the samples.

Q. So you would never overwrite a file in your work, would you?

A. I just said we did. What we do, we

do this regularly with the performance controls.

Q. If you overwrite a file, how is an independent expert, someone that's independent of WADA that's looking at the package, possibly going to know that you did it?

A. Again, we are not talking about the athlete samples. We are talking about the controls performed on the machine, and quite frankly, whether the technician had trouble with a standard aimed at showing the performance of the instrumentation is of no relevance with regard to evaluating the data provided as long as the control, the blanks, and the athlete's samples are being recorded and shown.

Q. But the purpose of the controls is to show that the equipment is working in the sequence that you are running the athlete sample, isn't it?

A. Of course.

But if you run, if you start the sequence at 2:00 in the morning, the problems with the control at 9:00 in the morning has no significance, as long as you fixed it, and when you start your sequence, or when you inject the athlete samples, we have to be able to show that

then the instrument was functioning properly.

Q. So you run a control. It doesn't work. So you run it again, and that's perfectly acceptable?

A. Of course. I give you this example. You change the liner on the GC, and you have, you put that liner, and you put your standard of performance, and the first time you inject, you see nothing. And so that's not good. You have to continue. You overwrite the file. It can be done, and then once the equipment is in good working order, then you run the samples.

Q. Now, let's say you are in the middle of running a sequence, and in the middle of that sequence, one of the controls gives you a result that you don't like. Don't you have to go back and start over?

A. That depends on what's the problem. If, for example, the -- let's say, that we have a problem because the needle of the injector broke, you don't have to rerun the sequence from the beginning. You just fix the, you just fix the syringe, and you start over the injections. You resume the sequence. You don't want to have to start from the beginning.

Q. What if you are in the middle of an injection sequence, and one of the controls just gives you a result that doesn't look right? Can you just start over then?

A. Yes.

Q. You should start over then, right?

A. Not -- that depends what control you are talking about, but if the first control, if we're talking about IRMS, I don't know what -- it's difficult for me, because I don't know exactly to what you are referring, but if where, let's say, they ran their stability test, they're not happy with it. So they can fix something, and run the stability test again. If they are happy, then, they can move to the next step. They inject the alkanes. They look, and they pick up a problem there. Then, they can fix the problem and run again, this alkane.

Q. So the only time that you could rerun it would be if you see a result that you don't like, and you can identify a particular problem that caused that result, right?

A. Or, I would say, if something that

could happen is if the order of the samples are not done correctly, and somebody is taking, is

noticing it, so they could decide to stop the sequence. You don't have to run the entire sequence.

Q. Let's say you run a control --

A. What control are you referring to?

Q. Let me give you an example.

A. Give me an example.

Q. Let's take a mix cal acetate. Let's say you run the mix cal acetate. You get a result that doesn't look right to you. You don't know why. You run it again under exactly the same conditions and get a different result. Wouldn't that concern you?

A. Well, I would say that if the reason for this is that there had been a, if the reason is that the first injection was a partial injection, and didn't have -- the peaks were not coming out as it should, then, it's no problem.

If the second result is good, with the same bottle, it's correct.

MR. BRUNET: It's now 5:00. We will adjourn for the day and be back tomorrow morning at 9:00. Thank you.

MR. BARNETT: Just for scheduling purposes, can we get some indication of how much longer Respondent may have with this witness?

MR. BRUNET: Oh, perhaps, you can talk between yourselves. Thank you.

MR. WEISS: Just let the panel know, graduation is at Pepperdine, just to be aware of the traffic and the public.

MR. BRUNET: Thank you for that.

(Recessed at 5:00 p.m.)

BEFORE THE AMERICAN ARBITRATION ASSOCIATION

North American Court Of Arbitration For Sport Panel

TRANSCRIPT OF PROCEEDINGS, May 18, 2007

UNITED STATES ANTI-DOPING AGENCY,

Claimant,

vs.

FLOYD LANDIS,

Respondent.

PURSUANT TO NOTICE, the above arbitration hearing was held at Pepperdine University, Department of Law, Malibu, California, May 18, 2007, commencing at 9:20 a.m. before Debra K. Resling, RMR, Certified Realtime Reporter and Notary Public.

AMERICAN ARBITRATION ASSOCIATION PANEL

MR. PATRICE BRUNET, 1010 De la Gauchetiere West,
#2260, Montreal, Quebec H3B 2N2, Canada. E-Mail:
Pbrunet@brunetavocats.com.

MR. RICHARD H. MC LAREN, Innovative Dispute Resolutions, Ltd., c/o McKenzie Lake Lawyers, LLP, 300 Dundas Street, London, Ontario N6B 1T6, Canada.
E-mail: Mclaren@mckenzielake.com.

MR. CHRISTOPHER L. CAMPBELL, Chapman & Intrieri, 2236 Mariner Square Drive, Suite 300, Alameda, CA 94501, United States.
E-mail: Ccampbell@chapmanandintrieri.com.

APPEARANCES

MR. RICHARD R. YOUNG, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MR. DANIEL J. DUNN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 1700 Lincoln Street, Suite 4100, Denver, Colorado 80203-4541, (303)866-0365, appeared on behalf of the United States Anti-Doping Agency.

MR. MATTHEW S. BARNETT, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MS. JENNIFER SLOAN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MR. MAURICE M. SUH, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333 South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. DANIEL L. WEISS, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333 South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. HOWARD L. JACOBS, Attorney at Law, from the Law Offices of Howard L. Jacobs, 4210 Lewis Road, Suite 5, Agoura Hills, California 91301, (818)442-0408, appeared on behalf of Floyd Landis.

MR. PAUL SCOTT, Chief Operating Officer, 2160 Century Park East, #2108, (310)203-0354, Los Angeles, California 90067, Agency for Cycling Ethics.

Participants behind Counsel Table: Caroline Hatton, Larry Bowers, Kathrin Weston, James Padilla; Floyd Landis, Amber Landis, Mr. and Mrs. Paul Landis, Arnie Baker, Michael Henson, Brent Kay, Todd Thompson.

Panel Participants: Dr. Francesco Botré, Andreas Zagklis.

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(Commencing Friday, May 18, 2007, at 9:15 a.m.)

MR. BRUNET: Morning, everyone. This is day 5 of USADA and Floyd Landis arbitration. Could I have appearances from counsel, please.

MR. SUH: Yes, good morning. Maurice Suh, Gibson Dunn and Crutcher, appearing on behalf of Floyd Landis, who is personally present. With me at counsel table is Howard Jacobs, Dan Weiss and Paul Scott.

MR. YOUNG: Good morning. Rich Young, Holme Roberts and Owen, and with me are Matt Barnett, Dan Dunn and Jenny Sloan.

MR. BRUNET: Thank you. We adjourned yesterday with the cross-examination of Dr. Christiane Ayotte. We will resume this this morning.

Dr. Ayotte, are you in the room?

And Mr. Suh, if you want to give me a moment, I will begin by announcing the time that -- that remains for each counsel.

MR. SUH: Surely. Thank you.

MR. BRUNET: So after four days of hearing, counsel for USADA have 14.3 hours remaining and counsel for Landis have 11.9 hours

remaining.

Thank you, Mr. Suh. You can proceed.

MR. SUH: Thank you.

(The testimony of Dr. Ayotte continued.)

EXAMINATION

BY MR. SUH:

Q. Good morning.

A. Good morning, sir.

Q. Yesterday, we were talking about the measurement of uncertainty for the IRMS testing process and LNDD.

A. Yes.

Q. Remember that?

A. Yes.

Q. Do you remember that the measurement of uncertainty for LNDD is .8; do you recall that?

A. Yes, at the coverage factor of K2.

Q. Right. And you were shown an accreditation document, correct, that had that figure in it; do you recall that?

A. An accreditation document?

Q. Yes. A COFRAC accreditation

document.

I will put it up on the screen. It is LNDD 0098.

MR. BRUNET: Counsel, what exhibit is that again?

Q. And it is Exhibit --

MR. WEISS: It's Exhibit 26.

A. Yes, I see it.

Q. Do you see it?

A. Mm-hm.

Q. Do you see that over here --

MR. BRUNET: Can you give us a moment, please?

MR. BARNETT: Mr. Suh, do you want to provide her with documents?

MR. SUH: Sure, that's fine.

MR. CAMPBELL: What's the Bates number?

MR. SUH: Bates number LNDD 0098.

MR. CAMPBELL: Thank you.

Q. This is the document you were talking about yesterday, right?

A. Yes, mm-hm.

Q. And this is the accreditation document that you also spoke about yesterday

with respect to accreditation of LNDD, correct?

A. Yes.

Q. And the accreditation process is a process by which an analysis or an examination is done at the laboratory's processes and procedures, and verification is done, correct?

A. Yes, they verify if validation has been done, the lab person is competent to do the work, and whether the -- whether the procedure is meeting the requirements of 17025, yes.

Q. And you would agree, of course, that the data contained in this accreditation document is very important, wouldn't you?

A. In this COFRAC accreditation, it just tries to give a description of the middle, yes.

Q. I'm sorry. That's not my question. My question is, you would agree that the information in the document is very important, correct?

Yes or no?

A. In that document, yes.

Q. And that the information in the document has to be accurate, correct?

A. Yes, mm-hm.

Q. Now, I'd like to zoom out. I'd like to show you the date on this document.

What is the date on that document?

A. That de prise d'effect meaning date of the -- well, the date is 16 -- 15th of December 2006.

Q. Right. When was the Tour de France? What date did the Tour de France take place in 2006?

A. In August of 2006.

Q. Okay.

A. August? July? July. I'm sorry. Summer of 2006.

Q. Okay. I'd like to show you, now, the next exhibit, which are Bates pages LNDD 0074.

MR. WEISS: That's in Exhibit 26 as well.

Q. You weren't shown this page yesterday, were you?

A. This is -- oh, 75. I'm sorry.

Q. LNDD --

A. Which page?

Q. LNDD 0086.

A. 86.

Q. 86.

A. Yes, I know what it is, mm-hm.

Q. But you weren't shown this document yesterday?

A. Not yesterday, but I've seen it in the documentation package before.

Q. And in this entry, it says that the measurement of error is 20 percent for a GC/G-IRMS.

A. On that paper, but I think I've seen elsewhere that it has been corrected by COFRAC.

Q. It was corrected by COFRAC after the testing in this case was done, correct?

A. Yeah, but that doesn't change that this is a mistake.

Q. No. I'm sorry. It was -- please answer my question.

It was corrected after the testing in this case was done, correct?

A. I would have to see the date, but I think, if you say so, I'm happy with this.

Q. Well -- no, no, no. Don't take anything I say without looking at the documents. I'll be happy to show you the documents. The date -- could you tell me what the date is?

A. Yeah, the date is the 1st of May 2006.

Q. Now, earlier you said it was very important that these accreditation documents and their standards be accurate, correct?

A. Well --

Q. I'm sorry. It's a yes-or-no question. Did you say that before? Did you say --

A. Yes --

Q. Yes?

A. -- it is important that these information --

MR. BARNETT: Objection. This type of questioning is not appropriate to try to limit the answer, cut the witness off. If Mr. Suh would like to testify, perhaps he could do that.

MR. BRUNET: Mr. Suh, would you like to go back in the court record and see what word she used?

MR. SUH: What I'm objecting to is that if I ask her a question --

MR. BRUNET: Term- -- scientific terminology is important. We learned that

earlier, that precision and accuracy are different.

MR. SUH: Yes.

MR. BRUNET: I think that if you -- if you want to go back to the court record, we can have it read back.

MR. SUH: Could you please read back the question?

MR. BRUNET: The previous question?

MR. SUH: The previous question.

(Reporter read the question beginning on Page 878, Line 25.)

A. Yes, what appears on that document gave me the listing of the procedures that are -- that are falling under the scope of accreditation now. Now.

That is the way that it should appear in the -- in the records of the COFRAC, the accreditation body. So it is important that it is accurate, but it is not -- it is important that it is accurate, but that, if they made a mistake when they wrote the -- when they wrote the procedure employed by the lab, that doesn't mean that there is a mistake in the procedure in the lab.

Q. It's not if there is a mistake. There is a mistake, correct?

A. There is a mistake of COFRAC -- of COFRAC --

Q. In the accreditation document,

correct?

A. It's not the accreditation document of the lab. It's COFRAC's mistake.

Q. COFRAC is the body that does the examination for the accreditation, correct?

A. Yes.

Q. And by the way, what would a 20 percent measurement of uncertainty actually be?

A. That depends. 20 percent, I have no clue. It would have to be -- to me, it's unprecise. A percentage is unprecise when we talk of uncertainty. You should use the units that are used to report the data.

So if you have a -- if you have a threshold at two nanogram per mil, your uncertainty should be expressed in nanogram per mil, so percent has not that much meaning.

Q. I'd like to show you a chart which we've seen many times before.

The Panel has asked us to make it an

exhibit.

May I approach?

MR. BRUNET: Yes.

(GDC Exhibit 1350 was marked.)

Q. The same chart we've seen. I believe you were present in the courtroom when we talked about it before. It is now GDC 1350.

Oh. Do you -- do you understand

what is marked GDC 1350 is?

A. I would like, if you can, that -- to confirm with you that we're talking about the reprocessing, the numbers that were obtained by reprocessing the electronic data --

Q. Yes.

A. -- from the -- yeah, okay.

Q. Why don't I just state for the record that GDC 1350 is a duplicate, of course, of the chart that's been shown to other witnesses here in this proceeding, and that -- we can go through this.

This top rectangle is the sample; this bottom rectangle are the blanks; that this first column right here, I will put a one by it, is the column from the original -- the original results --

A. Mm-hm.

Q. -- from Sample A and Sample B from Stage 17. And then, of course, following below that is the Sample A blank and the Sample B blank.

This next column, right here with the two, is the column when the same data was analyzed using the automatic background subtraction feature.

Column 3 is the column which was analyzed using the same procedure, the manual integration and manual background subtraction method, that was used the first time around.

The fourth column is with the automatic background subtraction turned off.

And the fifth column is the data analyzed under the MassLynx program, which is the -- a more recent version than the OS/2 program, which was about ten years old, which was used for the original results.

Okay?

A. Yes, fine.

Q. All right.

Now, let me just start out, as a practical matter, you said yesterday that in

your lab you have the PDZ Europa instrument, correct?

A. Well, we have two, but we have the PD "Zed" Europa.

Q. Two PD "Zed" Europas?

A. No, one PDZ Europa and one Finnegan.

Q. Okay. And that you didn't know which software you had for the PD "Zed" Europa?

A. Nope, not at all.

Q. And you didn't know what software you had for the Finnegan?

A. Nope.

Q. Do you know which Finnegan instrument you have?

A. We have Delta XP Plus.

THE REPORTER: Delta XP Plus?

A. Yeah.

Q. Delta XP Plus.

And which one of those instruments is more -- which is newer?

A. The Finnegan.

Q. And when did you acquire the Delta XP Plus Finnegan instrument?

A. Oh, I can't remember.

Q. Approximate.

A. Two years ago, a year and a half.

Q. Okay. And how long ago did you acquire the PD "Zed" Europa?

A. In -- that was 1999 for the Pan Am games, yeah.

Q. So about eight years ago.

A. Yeah.

Q. And then yesterday you testified that, at your laboratory, you manually removed background noise and do manual background subtraction, correct?

A. We -- yeah, we do manual reintegration of the peak and -- yeah.

Q. You do manual reintegration of the peak?

A. Yes.

Q. Correct?

A. Not me, but my --

Q. Your staff?

A. Yes; it's important to say this.

Q. Sure. And your tech- -- your employees, your technicians, also do manual background subtraction?

A. Yes.

Q. They do both, correct?

A. Well, I would assume, yes.

Q. Well, don't assume. You said yesterday that they -- you do do it.

A. Well, again, I'm not the operator of the instrument. They are instructed to make the necessary integration and corrections.

Q. Isn't it true yesterday, when we were talking about the manual process here, you testified that you, in fact, do -- not you, but you meaning your lab, does manual background subtraction?

A. They do the necessary correction. Whether it is background subtraction or peak integration, they do what they have to do on the Finnegan or on the PD "Zed."

Q. They do what they have to do.

A. Yep.

Q. So you're saying that they use both instruments to do that manually, correct?

A. They do manual corrections, yeah.

Q. For -- with both instruments?

A. Yeah.

Q. And both instruments, they -- they do both background subtraction and peak integration manually, correct? I just want to

be clear, because --

A. Yeah, but I can't be that clear. I'm not the one running the instrument. They do intervene -- let me say it differently.

Don't ask me the detail of those operations. They do manual intervention of the peak to get the precise delta value.

Q. Yesterday when you were testifying about what was done in this case, I thought you had said that the same things that were done here were done in your lab, correct?

A. Manual integration, manual optimization of the signal.

Now, the technical step for this, don't ask me.

Q. Okay. Just -- let me just ask you questions, because I want to be precise about this, okay?

Yesterday, you said that the same kinds of things that were done in this case are done in your lab, correct?

A. Yes.

MR. BARNETT: And to the extent that

Mr. Suh's question is trying to characterize and summarize the entirety of --

MR. SUH: No more --

MR. BARNETT: -- the testimony here --

MR. SUH: No more speaking objections and coaching the witness. If you want to make an objection, make an objection, and I'll rephrase the question. Make an objection.

MR. BARNETT: I have. Do you want me to say more, Mr. Suh?

MR. SUH: No.

Q. (By Mr. Suh) Can you reread the question back, please?

(Reporter complies.)

A. Yes, correct.

Q. And today you say you are not exactly sure what procedures you used in your lab to do background subtraction manually and peak integration manually?

A. No, no, this is not what I want to say. What I'm saying is that the correct -- the data -- they intervene to correct the data. But don't ask me the technical of it, of this -- of this correction, as I am not aware. I'm not the one operating the machine.

I can just say to you that we do exactly what the lab in Paris is doing. We are correcting the peak until such time that we obtain an accurate data --

Q. But --

A. -- but don't ask me how the technique of it is done.

Q. But this is a technical process, wouldn't you agree?

A. I agree.

Q. So how can you say that what is being done here is what you're doing at your lab if you don't know the technical process --

A. I --

Q. -- how can you say that?

A. Well, I know how to get -- I know what they are trying to do. Now, the words -- the technicality of it, I never -- I don't operate the instrument. But I know that we do -- we do reintegrate peaks, we do, and make sure that the baseline is correctly drawn. We do make sure that the baseline is correctly made. But how this is done on each instrument, you don't ask me.

Q. So with respect to the specifics in

this case, of what was done in this case, you cannot now say that what you do in your lab is the same technically as what was done in this case, correct?

A. The concept is exactly the same. The way to get there may be phrased differently. It may be the technical approach of the instrument is different, but technically, we do adjust the signal with regard to the background and the -- the background subtraction.

Q. It's not an answer to my question.

Can you reread the last question back?

(Reporter complies.)

A. I'd say, no; it's not even the same instrument.

Q. I don't -- I just want to make sure -- I don't want your comment to be misconstrued as a comment about the instrument. So, perhaps we could reread the question back, and perhaps you could listen to the question and answer the question.

MR. BARNETT: I would just submit for the Panel that she's answered the question. She's apparently not following the script Mr.

Suh wants, but I don't want --

MR. SUH: No more speaking objections. Make your objection.

And we'll read the question back,

please.

MR. YOUNG: The objection is she's already answered the question.

MR. BRUNET: The question is not necessarily always answered by a yes or a no. The witness can nuance the answer, Mr. Suh.

MR. SUH: That's -- that's fine with us. It's just that when she says, this is not the same instrument, I don't want anyone to be under the misconception that somehow she's merely commenting about the instrument.

MR. BRUNET: Well, maybe you can follow it up with another question.

Q. Is your comment solely about the instrument?

A. There may be different ways to operate the instrument, software may be different, but the principles, the principle behind the actions that you are doing, should be the same.

So basically when I say that our lab

would do the same thing, we would not rely on automatic integration of peaks and automatic background subtraction, and automatic, whether you want it to be phrased like automatic attention of numbers by the computer, my answer is, yes; we do it exactly the same thing in Montreal. We do not rely on automatic --

automatic generation of data by software.

Q. All right. I'd like to turn your attention to, once again, this chart that we were looking at. And can you, just looking at the chart and the top rectangle -- not a triangle, for Dr. Brenna's benefit, he's just joined us here, the rectangle -- do any of those values concern you? Do they give you any concern looking at the results?

A. In the upper panel, the upper box? Well, I have a concern -- while I'm happy -- while I'm satisfied that, if I look at the original result and the manual integration, which I understand is produced by the lab person, I have a bit of a concern with regard to the change of the delta/delta values from etiocholanolone -- from etiocholanolone and from androsterone to the 11-keto etiocholanolone.

For the 5-alpha and the 5-beta metabolite, it's about the same.

Q. Okay. So let's make sure that this is clear.

So the one that concerns you is the change from here to here, that's about a change of about 1.67 per mil, correct?

A. Yup. Mm-hm.

Q. And the other one that concerns you is 3.51?

A. Mm-hm.

Q. 3.51 to 1.67.

A. Yes.

Q. Right?

A. Yes.

MR. BRUNET: 61.

A. 61.

Q. 61. And that's a difference of about 1.9 per mil, right?

A. Mm-hm.

Q. And you understand, of course, that when the etio and the andro is analyzed, it's being analyzed in the same sequence and with the same processes that the alpha and the beta -- the 5-alpha and the 5-beta are being analyzed,

right?

A. It's not in the same fraction, it's not in the same injection, but it's within the same -- the same sequence, yeah.

Q. So when you say it's not in the same fraction, just so that everyone is clear --

A. 3.

Q. 3?

A. Mm-hm. 1.

Q. 1?

I apologize for my handwriting. It's not the neatest.

This is the sequence, correct?

A. This is a sequence, yes.

Q. And you're saying that, well -- why don't you point to me -- do you have your little pointer? Well, I'll tell you what --

MR. BRUNET: Counsel, will you read it for the record, or will you enter it as an exhibit?

MR. SUH: It's just a demonstrative. It's -- it's easier just to repeat it out loud so that everyone can follow along. I can mark it as an exhibit, if you wish.

MR. BRUNET: Well, unless you want

the witness to read every line, I would rather either you mark it as an exhibit or read it out loud.

Q. Okay. I'll read it out loud.

There are three stability runs. Three mix cal IRMS runs: One mix cal acetate run, the F3 blank, the F3 sample, the F1 blank, the F1 sample, the F2 blank, the F2 sample, and the mix cal acetate, right?

Why don't you tell me which of the targets are in the F3 blank and sample?

A. In the F3, you got the 11-keto with the etiocholanolone; in F1, you got an -- etiocholanolone and androsterone; and in the F2, you got the alpha and beta diol plus the pregnanediol.

Q. Are you sure about that?

A. Oh, maybe not. Maybe not. If you say, show me the -- show me the data. If I'm wrong, I would be happy to correct. Show me the -- I thought I knew but ...

Q. I was just writing it down, and I realized that none of those were actually correct.

A. Oh, sorry for this. I should always

ask the lab people.

Q. The F3 --

A. Attention. Give me a chance.

I thought I had it correct.

F2 is etiocholanolone and androsterone. F2, yes, yes.

Q. Nope. Nope, nope. You said 5-alpha.

A. No. Yeah, but I was wrong. F2 is the etiocholanolone and androsterone.

F3 --

Q. 5-alpha, 5-beta?

A. -- is the diol, yes.

Q. Is the diols. When you say the diols -- when you say the diols, you mean the 5-alpha and 5-beta and the pregnane being --

A. Yes.

Q. -- the pregnane being the endogenous reference compound?

A. Plus the endogenous reference compound.

Q. So that everybody -- everybody can follow along. And the etio andro in F2 and F1 is? That would be the --

A. F1 is -- is the keto, the ketoetio.

Q. Keto, ketoetio. That is the endogenous --

A. I will take a coffee, and I will be better. Sorry for this one, yes.

Q. So, basically, what you're saying is in this example of a sequence all run together and at the same time, that, in essence, this one causes you concern, because that's the andro and the etio?

A. Is the order of the sequence correct? Because, since my memory is not that good this morning, I'd like to check that. Stability, F1, F2, yes, yes. F1, F2, that's right. Okay.

Q. And then this one, of course, would cause you --

A. Yes.

Q. -- concern --

A. Yes.

Q. Because it's the andro minus the 11-keto and the etio minus the 11-keto. But when you look at it, you're saying somehow, it's all okay, because this one just taken right out of this sequence, that one is fine.

A. That is not what I said, sir. You

are -- what I said is that the reprocessing of the data here causes me concern because the numbers obtained are not matching. Now, I didn't say that the chromatogram or the analysis of two out of three fractions were not correct.

As -- as a matter of fact, if I -- because it created concern, I went back and tried to see what could have been -- what could have been the thing that was changed between the first original result, manual integration, and the second one. And that has more to do with the 11-keto -- the 11-keto integration that must have been different integration, attention of the delta, since andro and etiocholanolone are remaining the same in absolute -- about the same in absolute delta values. And it's the integration of the 11-keto that seems to have caused the problem.

So I'm not concerned by the chromatography of F3, F2, even of the chromatography of F1. I don't know what caused the integration or background subtraction to not be the same in both processes.

Q. And you don't know because there's no record of it, right?

A. Well, because I was not there when those integrations were made, and actually, because I have not seen how the integration was performed.

Q. You don't because there's no record of it, correct?

A. I have not seen them, yeah.

Q. And looking at -- back at our exhibit here, does the fact that this number from here to here changed so much -- does that cause you to wonder about the manual process by which the data was calculated?

A. Well, it is the same. In both, the etiocholanolone and the androsterone are subtracted against the same 11-keto, and the difference in both processes is due to the number we obtained for the 11-keto.

So am I concerned? I am concerned that there is something that we cannot explain from the manual integration here.

Q. That's right. It is the same technician who performed this process, this one, as performed this one, as performed this one, as performed this one, right?

A. Yes.

Q. So if you are concerned about how the manual process was done when moving from the original result to the reprocessed result, why wouldn't you also be concerned about that same process done by the same technician on the 5-alpha?

A. But, no, for the following reason: If we look at that table -- if we look at the -- if we look -- if I look at the global picture -- if we look at the A Sample and that particular result, actually, everything is quite going on. Everything is really together, whether it was analyzed the first time or the second time. We have a very good match.

If we look at the -- and if we look even by the integration done automatically by the MassLynx, that is good. Of course, we don't consider what's obtained -- what's obtained without -- without subtraction of background, which I found little merit.

So, if we go to the -- now, the only -- the only delta value which is different is in one integration of the 11-ketoetiocholanolone. It's -- it's homogenous for the A, whether a different

system -- whether it was done originally and whether it was done on the day that everybody went there to see the reintegration.

But there's one difference on one peak for the B Sample analysis. So it doesn't create doubt on the rest of it. We don't know what's the explanation for that.

Q. You are saying, I think, in the beginning, at least, of your statement that because all of the values move approximately together, it's okay. Correct?

A. What I just said -- now what I just said in my estimate.

Q. In the start. Well, you said, basically they all move together--

A. Yes --

Q. -- approximately?

A. The A Sample is very homogenous whether it was processed the first time or the second time. We have -- we have data that are comparable.

It's just on that one peak that we seem to have a discrepancy in the integration. And don't forget that the A and the B are split samples, so we have one thing in one of that

analysis.

Q. My question is only going to the B right now.

But you would agree that the same process, same process, is being applied to all of these values here, right? And the same process is being applied to all of these values here, right?

A. Obviously not. Something is different.

Q. The process --

A. The process may be the same, but there is --

Q. It's the process.

A. -- something that varied.

Q. It would be -- this will go quicker if you can listen to the question. I'm asking you about the process.

The process is the same, correct?

A. Apparently.

Q. The technician is the same, correct?

A. Apparently. I was not there, sir.

Q. And so, when you are concerned about an unexplained difference, as you described earlier, in these two, the process that resulted

in that unexplained difference is the same process that was used to calculate these two, correct?

A. And it's the same process that was used for the A Sample to calculate exact same values.

Q. Could you read back my question, please.

(Reporter complies.)

A. Yes, and it's the same process that was used for the A as well.

Q. Bear with me for a moment.

Just a few more things I'd like to show you.

Were you seated in the courtroom when we were talking about the log files at any time?

A. No, not that much, sir, I'm afraid.

MR. SUH: Todd, can you put up GDC 1066.

Q. (By Mr. Suh) I believe yesterday that you testified that at your laboratory you have, in fact, deleted files when the results of the files did not matter; is that right?

A. I don't think this is -- those are

the words that I've used. What I said is that we overwrite files that are not useful to be kept.

Q. And the files that are not useful to be kept, when you overwrite them, it, in essence, deletes the data that was contained in those files, correct?

A. Yes.

Q. Okay. So that would be a deletion of the data --

A. Yes.

Q. -- wouldn't it?

A. Yes.

Q. All right.

MR. SUH: So Todd, why don't you go down to 11:26:19, the bottom of the page.

Q. (By Mr. Suh) and you know what? At Dr. Botré's request, I -- I should have started that a little bit earlier.

DR. BOTRÉ: No, it's okay.

Q. Is it okay?

At 11:26:19, where it says: Commencing analysis of 2004 mix cal acetate, and then going down to one, two, three lines to MixCalAcetate01.raw, and then going down three

more lines --

MR. SUH: Todd, why don't you grab the commencing analysis at the top there too, for clarity sake.

Q. (By Mr. Suh) And then commencing analysis of mix cal acetate. And then going down to the next page, to finish off this sequence, at the very top line of the next page, which would be the MixCalAcetate01.raw.

Can you see that?

A. Yes, sir, but I'm afraid I will not be very useful, as I don't -- I have never watched such a record of a -- of a process. I've never seen it. And I -- it seems as if my brain refuses to go through this. But I see it.

I will not be very useful, but let's start.

Q. You see that the results that were run, MixCalAcetate01.raw, and then, below that, after the commencing analysis, again, MixCal01.raw?

A. So, wait. So, we have at 11:26, commencing analysis of MixCalAcetate01; and then, 11:26, closing reference gas valve and waiting 30 seconds. And then -- okay. So

what --

Q. And, of course, we don't have any records of what actually happened in there, although we do have testimony that the results were not correct, and so they started again, commencing analysis, 2004MixCalAcetate01, down to MixCalAcetate01, thereby deleting the original data.

A. Okay. So, let me read -- if you are going to examine me on this, I will have to read every line. Okay. Commencing analysis, closing, sample log file closed. Saved to. Then they repeated it, 12:09, okay. Okay.

Q. Okay?

A. Okay.

Q. All right. Now, is this the kind of thing you do in your laboratory?

A. Well, if -- again, I want to make sure that I understand what that means.

So they commenced an analysis of a calibration mixture. They -- if I understand, they stopped it, and -- they overwrite it by reinjecting it, yes.

Q. All right. And the testimony was, on this particular one, that it was done this

way because the data was not correct.

A. The data.

MR. YOUNG: Objection. Mischaracterization.

Q. The results were not correct?

A. Don't ask me. Don't ask me.

Q. I'm just asking you a hypothetical. The hypothetical is this.

MR. BRUNET: Mr. Suh, the witness can testify to what she understands, but it is a hypothetical question. If you want to rephrase it in such a way that she can answer in her --

MR. SUH: Sure. And given that she's been an expert on so many things, I think she's perfectly capable of answering this hypothetical and also as a fact witness as to what's going on in her lab.

Q. (By Mr. Suh) In your lab, if you -- would you do this kind of thing if you received data that you felt was incorrect?

A. If we were on this same exact -- I've said this -- if we run a calibration mixture, if we realize that something is wrong with that calibration mixture, then we would stop, and we would fix it, and repeat it. Yes,

I'm saying we would do this.

Q. And then, when you did that, would you overwrite the data?

A. Yes.

Q. Which would delete the first data?

A. Yes.

Q. But of course, you don't know exactly what happened here, right?

A. It's not written. There be -- we know what happened, the sequence of events, but we don't know what prompted this to -- to be done.

Q. Okay. Let's turn to Page 1073.

And if you could turn your attention to the lines beginning about 13:08:58 all the way down to the bottom of the page?

A. 13? Where are you, sir? I'm sorry.

Q. 13:08:58 on Page 1073.

A. Line 13:08.

Q. The time gap at 13:08. I just want to start three lines above 13:09:02, which is commencing analysis of the mix cal acetate.

Going down to data acquired

MixCalAcetate01.raw?

A. Yeah. Yeah.

Q. Lines one, two, three, four, five, six, commencing analysis of MixCalAcetate01 again. Down to the next line; saving the data over 01.raw; a few lines down commencing analysis of MixCalAcetate01; and then, again, three lines down from that, the MixCalAcetate01.

A. Yeah. I see it, mm-hm.

Q. Now, once again, in your lab, would you overwrite the files with the same file name if you felt the data was incorrect?

A. Yes. Let me -- let me give you an example of something that I could see, and again, I'm not sure this is what happened. But let's say -- and I said this yesterday. We change the liner. We inject --

Q. Hypothetically?

A. Hypothetically. We change the liner. We inject our standard mixture. We see nothing. This is called -- this is called -- how can I -- this is called charging or conditioning -- conditioning your insert.

Then you inject it once. You inject it twice, and we overwrite the data. Not only are we doing this, but it's -- it's put in a file, a subfile which is called "poubelle," wastebasket. So we don't keep it. We overwrite because it's just conditioning, in that liner.

Again, I'm not saying this is what happened there, but that record, to me, makes sense. They just repeated injection, or they may have fixed the problem, but with the calibration mixture, this is what we would do.

Q. Would it surprise you in this case if the testimony was not that the -- in this instance that the liner was changed, but that, simply, the data was not correct?

A. Oh, no, I'm not surprised. I'm telling you, it's just that -- I don't know. I don't know. The data is not correct, it's okay, whatever the reason for the data not being satisfactory for the --

Q. So just to review -- we talked about quite a few things.

Number 1, overwriting data like this, as we've seen here, is okay?

A. Yes.

Q. And you do it in your lab too, right?

A. Yes, yes.

Q. And then, yesterday, you said that

going out of the sequence, this sequence right here, if you were to go out of sequence, that would be okay and that that's something that sometimes occurs in your lab too.

A. Yes. As long -- as long as a few principles, that being said, are being followed, which is to have blank samples injected between the quote/unquote suspicious or presumptive samples.

Q. And then you also said, of course, that manual integration subtraction, without keeping a record of it is okay, and you do it in your lab, correct?

A. Well, we -- we can say -- yes, I can say this, mm-hm. Sometimes we keep the record when it's relevant, but it's okay to not keep it.

Q. And I think you also said that keeping a chain of custody that doesn't actually show the intralaboratory transfers, that's okay too, and you do it in your lab.

A. Yes, we do it in my lab.

Q. And that rerunning the mix cal acetates, one after another, that's okay, and you do it in your lab?

A. Yes, definitely.

Q. Even though some of the results may not be consistent with each other?

A. We're talking about calibrating the

instrument?

Q. Yes.

A. Yes, of course. So the point is to get accurate results, so if the purpose of rerunning something is because the first time it was not good.

Q. So, in essence, with respect to the IRMS part of the case, you couldn't really come in here and say that any of the things you see at LNDD were not perfectly okay, because then you would be criticizing your own lab's procedures, right?

A. Well, that is a way to phrase it, but I'm afraid that is not -- that has not -- that has not prompted me to come here. I was not under the grill in that case.

Q. Let me just reask the question, because I want to make sure you understand it.

Isn't it true that if you criticized these procedures, because they are the same kinds of things you do in your lab, you would be

criticizing the procedures in your own lab?

A. If you phrase it that way, but what I'm telling you is that it's coming from experience. If I'm telling you it is okay, it is sound in principle, scientific principle, it is not based upon who did something wrong or not.

MR. SUH: I think Mr. Jacobs is going to ask a few questions about the GC/MS testing.

MR. BRUNET: We'll recess for 15 minutes.

MR. JACOBS: Thank you.

(Brief recess taken from 10:10 to 10:50 a.m.)

MR. BRUNET: Welcome back, everyone.

Before we proceed, I wanted to address a technical issue -- and we've had a discussion between Panel members in chambers -- regarding the witnesses. I understand that there's a -- Ms. Buisson has to catch a plane later, and we have had discussion with counsel, and we decided that we would finish with Dr. Ayotte now, and that would take approximately 45 minutes.

We've been discussing, and we'd like

you to consider whether or not it wouldn't be preferable to proceed right away with Mrs. Buisson, and then we could come back with Dr. Ayotte.

If you are comfortable with that, then, we could do that. Don't take this as an order of the Panel to do this this way, but if you want to maybe take a few moments to confer and see if that would be a --

MR. BARNETT: We'll make this the

shortest conference yet. We're fine with that.

MR. JACOBS: It's fine.

MR. BRUNET: So it's fine to go with Mrs. Buisson now?

MR. JACOBS: Yes.

MR. BARNETT: To avoid any allegations from anyone, Mrs. Ayotte was marking by herself some pages she had looked at. Let me just remove those tabs, before we use the binder.

MR. CAMPBELL: With the interpreter and the witness, I was wondering if it would be better if you switch places.

THE INTERPRETER: Oh, yes.

MR. BRUNET: I believe the reason

behind that is when the witness speaks, this way -- when she's placed this way, she can speak to the parties.

MR. CAMPBELL: Yes. So the interpreter can hear her.

MR. BRUNET: It might be easier.

THE REPORTER: Remind you of your oath?

THE INTERPRETER: Yes, thank you.

WHEREUPON,

CORINNE BUISSON,

the witness herein, having been first duly sworn, through the interpreter, to state the whole truth, testified on her oath as follows:

MR. SUH: Is the witness sworn? I thought I --

THE REPORTER: Yes.

MR. SUH: Thank you.

EXAMINATION

BY MR. SUH:

Q. Good morning.

THE WITNESS: Bonjour.

A. Good morning.

Q. Can you tell me about your background and experience as it relates to your

employment at LNDD?

A. I have a degree as a doctor in analytic chemistry, with a specialization in isotopic analysis in G-C-M-R-S-S.

MR. BRUNET: (Brunet interpreting in French.)

Q. With the GC/C-IRMS?

A. GC/C-IRMS.

Q. And when did you -- when did you begin your employment at LNDD?

A. I began in November of 2005.

Q. And where were you employed prior to November of 2005?

A. I was working at the laboratory. I was working at a laboratory that dealt with residual analysis of contaminants in animals.

MR. BRUNET: In food.

THE INTERPRETER: And in food.

MR. BRUNET: No, aliment is food.

THE INTERPRETER: Sorry. Oh, aliment. I thought you said animaux. Sorry. With food, all right.

Q. And what was your job title -- excuse me. When you were working as a -- working at the lab that did analysis of food

contaminants, did you use GC/C-IRMS testing?

A. Absolutely, yes.

Q. And you used the IRMS instrument?

THE INTERPRETER IRMS what?

Q. Okay. I'm sorry. I'm going to call -- for purposes of this examination, I'm going to call it -- "GC/C-IRMS" I'm going to call it "IRMS."

THE INTERPRETER: Okay. GC-C -- I can -- will be glad to say GC/C-IRMS.

Q. No, no, no. That's okay. It's too much -- too much. By the end of this, I'll be done with saying IRMS even.

MR. BRUNET: Madam Interpreter, can you -- can you just translate for the purpose -- technical purposes -- of what Mr. Suh just said?

THE INTERPRETER: Thank you. Thank you, Your Honor. (Interpreting.)

Q. And which -- for how many years did

you use IRMS testing methods prior to coming to LNDD?

A. For three years.

Q. And once you got to -- one more question.

When you were working in the

laboratory in contamination, which IRMS instrument did you have?

THE INTERPRETER: Which instrument?

Q. Did you have in that laboratory?

A. It was an IsoPrime. A MicroMass IsoPrime instrument. GV instrument.

Q. And do you remember the version of the software that you had?

A. I -- I started with the OS/2 software, and then we -- we -- we changed over to the MassLynx software, that version.

Q. When did you change over from OS/2 to MassLynx at the other laboratory that you worked at?

A. You want to know the date?

Q. Yes. Approximate.

THE WITNESS: It might be maybe six or eight months.

A. Maybe six or eight months.

Q. Six or eight months before you left or six or eight months after you started?

A. After I started.

Q. So if you started at LNDD in November of 2003, you would have started at the other laboratory --

MR. DUNN: Excuse me, I think he misstated her start year as 2003.

MR. SUH: I'm sorry. 2005. Excuse me.

Q. November of 2005.

A. Yes.

Q. Three years before that would have been November of 2002?

A. It was exactly at the end of September.

Q. Okay. September. And about six months after you started, six or seven months after you started, approximately, you went from OS/2 to MassLynx?

A. Exactly.

Q. That would have been about March 2003.

A. I don't remember the date exactly.

Q. But six or seven months after you started.

A. Approximately.

Q. And are you the one that made the decision to upgrade the software from OS/2 to MassLynx?

A. No.

Q. Was it the laboratory director of the lab that you're working at?

A. Yes, because -- yes, it was, and it was within the framework of a particular project.

Q. And what project was that?

A. It was a European project to establish a reference methodology on the European level for isotopic analysis.

Q. And in order to do that project, do I understand that you upgraded, or your laboratory upgraded, the OS/2 to MassLynx?

A. It wasn't exactly just to use it for that particular project. It was part of the project to try to improve the instrument's performance.

Q. So in order to improve the instrument's performance, your old laboratory upgraded the OS/2 to MassLynx in about March of 2003; is that right? By March of 2003, April of 2003.

A. At the time, MicroMass was part of the project, and so they were working in collaboration with us, and so, therefore, they implemented, or they set up, the new software.

Q. In order to improve the accuracy of the instrument?

A. Well, not to -- not to improve the accuracy. It was to be able to have the latest version of the software.

Q. And what was the value of having the latest version of the software?

A. I haven't understood the question.

Q. What was the value of having the MassLynx software over the OS/2 software?

A. Because the MicroMass company worked with MassLynx software when the -- within the framework of this project, so it was in order to try to integrate everything.

Q. Integrate what?

A. Our work.

MR. BRUNET: I just want to make a note that homogénéisé does not have, perhaps, the exact same sense as integrate. Integrate is homogénéité; would be -- I just want to make a note. I'm not sure if I can --

THE INTERPRETER: Would be to -- would be to make it -- to integrate it in a way that was more -- that was better performance driven?

MR. BRUNET: Smoother flowing, perhaps.

THE INTERPRETER: Workflow?

DR. BOTRÉ: More compatible.

THE INTERPRETER: Work compatible.

DR. AYOTTE: Harmonize.

MR. BRUNET: Harmonize. Harmonize.

THE INTERPRETER: Harmonize would be --

MR. SUH: Anybody else?

MR. BRUNET: Any of those words.

MR. SUH: Turn it over to -- let's take a vote.

THE INTERPRETER: Integrate workflow.

Q. What was your job once you got -- what was your job title once you got to LNDD?

A. I had a doctorate. I was a doctor. Oh, I was in the process of completing my doctorate.

Q. No, that's not my question. My question was: What was your job title, your job description, once you got to LNDD in November of 2005?

A. I had been recruited to be the head

of -- of the depart- -- oh, okay -- R & D, research and development, for the chemistry department.

Q. For the chemistry department?

A. Yes, yes, research and development

in chemistry.

Q. Did you supervise other LNDD employees?

A. I did have a -- somebody who was responsible for that section, and I also was -- had an analyst working under me.

Q. And who were -- who was the person that was responsible for the -- who were the people that you supervised? What were the names of the people that you supervised?

A. When I arrived at the laboratory, the head of the sector was Caroline Bastien.

Q. When you say, head of which sector?

A. Of the IRMS sector.

Q. Caroline?

A. Bastien, B-a-s-t-i-e-n.

Q. All right.

A. And the analyst was Cynthia Mongongu.

Q. So Cynthia Mongongu worked for you?

A. Yes, under my direction.

Q. And were you responsible for the training of LNDD personnel on the IRMS testing process?

A. When I arrived?

Q. Yes.

A. No, they -- they'd already been trained.

Q. How about at any time after you arrived?

A. Well, we would have discussions about the right way to proceed -- yeah, well, in other words, we worked together, yes.

Q. Did you do any of the training for the people who worked underneath you?

A. You mean training them on the MassLynx software?

Q. On anything related to do with IRMS.

A. Well, yes, as far as the MassLynx software is concerned, since I did have experience, I was able to show them certain things -- well, I was able to show the analyst certain things.

Q. And what kinds of things were you able to show the analyst with the MassLynx

software?

A. Well, I don't remember exactly. It could be -- I just -- can't think of any specific examples.

Well, if there were any questions that arose, I was there to be able to answer them.

Q. Okay. So were there -- as -- was there anything else you trained the IRMS technicians on aside from the MassLynx software?

A. Well, I did supervise Claire

Frelat's training.

Q. You supervised Claire Frelat's training?

A. Yes.

Q. Did you do the training, or did you simply supervise it?

A. Well, with Cynthia Mongongu who was operating, and I would supervise.

Q. All right. Try to listen to my question -- question carefully, okay?

Did you directly train Claire Frelat?

A. Well, to the extent that I would give her advice if she had any questions, well,

that was certainly part of her training.

Q. Did you do anything with Claire Frelat aside from answer questions that she may have?

A. Not that I remember.

Q. It was Cynthia Mongongu who did the training of Claire Frelat, correct?

A. Yes, because she was the head of that section.

Q. And as the head of the section, did you do any training of Cynthia Mongongu?

MR. DUNN: Just a clarification: When you say head of the section, you just -- she just testified about Claire being the head of the section. And then you said that she's the head of the section.

MR. SUH: No. No more speaking objections.

If you think it's mischaracterizing the testimony, make the objection.

MR. DUNN: Okay. The objection is the question was ambiguous.

Q. Didn't you testify earlier that the -- that when you got there, you became in charge of IRMS testing?

A. Of the research and development in chemistry department.

Q. And within that, it included IRMS testing?

THE INTERPRETER: I'm sorry. It included what?

Q. IRMS testing?

A. In this department, there is a sector -- a section for IRMS analysis.

Q. So you were in charge of -- of things including IRMS, correct?

A. Yes.

Q. So did you do any training of Cynthia Mongongu on how to perform or analyze or conduct the IRMS testing?

A. No, because she was there before me.

Q. Okay. Because she was there before

you, you didn't feel it was necessary to do any training, correct?

A. She was already performing analysis.

Q. Did you train Cynthia Mongongu on how to recharge the liner of either IsoPrime instrument at LNDD?

A. No, because she was already there when I arrived, and she had already had that

training before I arrived.

Q. Did you train Claire Frelat in conjunction with her understanding that about 1.5 or 1.6 per mil was a significant difference in delta/delta values?

THE INTERPRETER: Significant difference? Sorry.

Q. In the delta/delta values?

A. No.

Q. Did you train Cynthia Mongongu or Claire Frelat --

I think it's Mongongu, not Mongon-bu?

THE INTERPRETER: It would be great if I had a list of everybody's name.

MR. SUH: Yes. We'll try to get you one.

Q. (By Mr. Suh) Did you train either Cynthia Mongongu or Claire Frelat on the procedures with respect to the performance of the IRMS test, and by this question, I mean the procedures related to conducting the IRMS sequence in order from stability at the beginning to mix cal acetate at the end?

A. Not for Cynthia, no, because she was

already there. As far as Claire is concerned, I got her up to speed. I -- I did do some work with her on the procedures to be followed.

Q. And what -- what precisely did you teach Claire Frelat?

A. We have certain procedures, SOPs, standard operating procedures.

Q. So you trained her on the SOPs?

A. I showed her.

Q. You simply showed her the SOPs?

A. With Cynthia, she actually practiced; and after that, she practiced with Cynthia.

Q. I see. So just so I'm clear. You would show her the SOPs, and then Cynthia would explain to her how it worked?

A. I also would show it to her as I explained it to her.

Q. Did you show or train -- excuse me -- Cynthia Mongongu or Claire Frelat on how to conduct manual adjustments to peak integration or background subtraction?

A. The same answer: And that means,

for Cynthia no; and for Claire, it was really more a question, if she had any questions, I was

there to answer them.

Q. And where did you learn how to do manual adjustments to background subtraction or peak integration?

A. In the laboratory where I was before that, the laboratory for elementary analysis.

MR. BRUNET: Food analysis.

THE INTERPRETER: Food analysis. Sorry.

Q. And how -- you understand that the automatic background subtraction is a computer algorithm?

A. The calculation of the background noise, yes, the calculation of it.

Q. And how is it that you would know more accurately than the computer to remove background subtraction?

A. Well, you don't take out the background noise.

Q. You don't take out background noise.

A. No, you reposition it correctly.

Q. And the purpose of that is to reduce the effect of background noise, correct?

A. No.

Q. Okay. Well, tell me what your

understanding is of why you do that.

A. Why I manipulate it?

Q. Why do you manipulate it?

A. In other words to -- why do I adjust it manually?

Q. Well, let's start with that question.

Why do you adjust it manually?

A. All right. Well, when you have a certain data, you look at the trace, 2 over 1, and then the software puts, or places certain reference points that are supposed to be there, that is the -- it's the software that performs that. And we need to make sure -- we check to make sure that the reference points are not, for instance, on a peak area, because a peak area, by definition, is not a background noise.

So that means that the point of references that have been chosen by the software are situated correctly in the area that corresponds to the background noise. And for that reason, the representation of the background noise that is done with the line that passes along the points of reference, and what we have to verify is that this line coincides

exactly with the baseline of the chromatograph.

And it's very -- it's very rare that that happens by itself on the O2S --

Q. OS/2?

A. -- OS/2 software.

Q. That's exactly right.

MR. BRUNET: Or when it does it by itself.

THE INTERPRETER: Or when it does it by itself?

MR. BRUNET: Yes, that's what the testimony was.

Q. I'd like to focus on that statement that it is rare that the OS/2 software does this process by itself.

A. I didn't -- I'm not sure I understood the last question.

Q. Would you read back her last answer?

(Reporter read the answer on Page 931, Line 5.)

A. I don't mean rare, I didn't say rare.

What I meant to say is that often it is badly placed. It is not well placed.

Q. And is it -- wouldn't you agree that

it has difficulty in placing it because of the chromatography and the background noise you see in the data coming through during the IRMS analysis?

A. Yes.

Q. When you met with -- when you met with Dr. Simon Davis --

A. Yes.

Q. -- back in April of this year, did you have a discussion with him about linearity and the linearity capabilities of the IsoPrime instruments?

A. Yes.

Q. Did you tell him in that discussion that you were having problems with the linearity of your instrument at certain ranges?

A. I don't remember having said that, no.

Q. So it's not that you remember that you didn't say it; you just don't remember whether or not you said it or not?

A. I do remember discussing linearity with him, but I don't remember telling him that we had problems with linearity.

Q. Do you remember what else you told

him when you were discussing linearity? And by the way, let me be specific. I'm talking about the IsoPrime 2, the one with the MassLynx software.

THE INTERPRETER: I'm not sure I got the rest of that.

Q. No, I think that's right. I think

that's right.

A. Yes.

Q. Yes. And what -- what discussion did you have with him about linearity about the IsoPrime 2 instrument?

A. He asked us if he could have it.

Q. And what was your response?

A. That we had done it the day before; that we had already done it before, the day before, I mean.

Q. Do you remember anything else about the linearity discussions that you've had with Dr. Davis?

A. No, except for the fact that he wanted us to redo it the same day. No.

Q. Let me ask you if you remember either being part of a conversation, or telling, or being present when it was said that no manual

reprocessing occurs -- occurs --

THE INTERPRETER: Can you add --

MR. BRUNET: (Mr. Brunet translating.)

Q. -- manual reprocessing occurs in conjunction with the use of the IsoPrime 2 instrument?

A. None? Any?

Q. Yes.

A. I -- I don't remember participating

in that, but I just don't have any recollection
of it at this point. I don't remember.

MR. SUH: No further questions.

MR. DUNN: We don't have any
questions either.

MR. BRUNET: Thank you. Merci.

(Mr. Brunet speaking in French with
the witness.)

MR. BRUNET: Thank you for coming
today. Have a good flight home.

THE WITNESS: Thank you.

MR. BRUNET: We're ready to call Dr.
Ayotte back and continue with cross-examination?

MR. JACOBS: Yes.

(Dr. Ayotte recalled to the stand.)

MR. BRUNET: Sorry. I've just been
advised by my colleague to my right that we have
to take a five-minute break.

(Brief recess taken.)

(Break taken at 11:27 to 11:34 a.m.)

MR. BRUNET: Welcome back,
Mr. Jacobs. We're ready to resume the
cross-examination of Dr. Ayotte?

MR. JACOBS: Yes.

MR. BRUNET: Please proceed.

EXAMINATION

BY MR. JACOBS:

Q. Thank you.

Dr. Ayotte, I'm going to ask you some questions about the GC/MS part of this case, the T/E ratio. But before I do, you said yesterday that, in your preparation, you spent approximately 20 or 30 hours reviewing the laboratory documents, right?

A. Yes.

Q. Of that 20 to 30 hours, approximately how much of that was spent reviewing the T/E ratio portion of the case?

A. I'd say, since it's less complex, I'd say five -- well, five to ten hours. I'm

absolutely unprecise on those numbers.

Q. Okay. I just want your best estimate.

A. Mm-hm.

Q. And it was your testimony that you believe that the T/E results were accurate?

A. I didn't say "accurate." I said they show that we have a T/E value of around 10, yes.

Q. Is it your testimony that the -- the accuracy of the T/E ratio in this case, the ten that you just referred to, is consistent or as accurate with -- as the accuracy of the IRMS analysis?

A. I would say that the result of the IRMS are the confirmation procedures using the

Paris lab, and that the semi-quantitative result produced by the GC/MS are fully consistent or come as a good complement to what the IRMS had produced.

Q. The GC/MS for a T/E ratio has a confirmation component as well, correct?

A. I'm sorry?

Q. The T/E ratio portion of the test, they do it in the screen, right? Yes?

A. Yes.

Q. And then they do the T/E ratio analysis and that's part of the A confirmation, correct?

A. Yes, and they call it a semi-qualitative measurement.

Q. And they also do the T/E ratio analysis as part of the B Sample confirmation, correct?

A. Yes.

Q. Is it your testimony that the results obtained from the confirmation analysis on the GC/MS are equally accurate to the confirmation analysis on the IRMS?

A. No. It's a semi -- the lab represents this as a semi-quantification. A semi-quantitative measurement, while the IRMS is a full confirmed process.

Q. Can you explain the difference?

A. Well, it's -- when it comes to the IRMS, the lab has -- the lab has done the analysis of the fraction; they put quality controls, positive and negative; they have isolated the fraction; they have identified each peak as -- they have carried on the

identification of each peak by GC/MS, while in the -- their semi quantitative confirmation of the T/E ratio, they are not -- the difference -- if I may say, the difference between the full confirmation with a semi-quantitative confirmation is that, in their lab process, it is done against three standards, and they do it only once on the A Sample.

So according to what they say, with the level of precision, they have -- and if I remember correctly -- around 40 percent of uncertainty on their T/E determination.

Q. I understand. So what you're saying is the measure of uncertainty on the T/E ratio is greater than the measure of uncertainty on the IRMS analysis?

A. As it is done, yes.

Q. Okay. Did you review the laboratory document package to determine if there were any ISL violations in connection with the T/E ratio analysis?

A. Yes. The first step of my review

was to see whether the scientific material was there and then if the procedures were followed, the lab procedures, meaning the -- versus the

ISL, yes.

Q. Did you identify any ISL violations in connection with the GC/MS analysis for T/E ratio?

A. I don't call it a violation. It's the -- I've seen differences with regard to what the technical document -- different interpretation, and when I looked at the reason why the lab has decided to proceed that way, I felt that it was for a very good reason.

Q. On the T/E ratio analysis, what are the differences that you identified between how LNDD performed the test and what the ISL says?

A. Well, with regard to the technical document and the ISL, a quantitative measurement must be done in triplicate, and was this -- and, yeah, that's about the main difference that I've seen.

Q. That they didn't do one of the confirmation analyses in triplicate?

A. Yes.

Q. Any other differences from your review of the lab document package that you saw between how LNDD did the confirmation for T/E and what either the WADA technical document or the ISL say?

A. There would have been also the identification, the formal identification, of testosterone with either a full-scan mass spectra or the ion ratios.

Q. In other words, LNDD did not acquire the required number of diagnostic ions in connection with their T/E analysis, correct?

A. They didn't -- they didn't show the identification criteria, yes.

Q. Any other differences that you noticed between how LNDD performed the T/E ratio test on confirmation and what the technical document and the ISL say?

A. No, because they have negative controls. They have -- they also have a QC, a quality control, for the confirmation, so that, for me, was okay.

Q. Let's talk about the diagnostic ion issue for a moment.

On a confirmation T/E analysis, a laboratory is required to acquire three diagnostic ions, correct?

A. Minimum criteria would be to show that a in a -- that in the SIM, a single ion monitoring, you require three diagnostic ions for a given compound, and that the ratio of those ions matches those of the standard reference.

Q. And that's called -- that's specifically set out in the technical document TD2004EAAS, correct?

A. It is. The criteria are in technical document IDCR, while the requirement for identifying the substance would be in the TD2004EAAS.

Q. And the reason that you have to -- well, let me back up a little bit.

LNDD, on their confirmation, did the selective ion monitoring analysis. At least that's what the paperwork says, right?

A. They -- yeah, because they say you have to do this, because the ratio is calculated by the SIM analysis on ion at m/z 432, which is the molecular ion of testosterone.

Q. And what you would -- what you're supposed to do, according to the WADA technical documents, is acquire the three diagnostic ions and compare the ratios of the most abundant ion to the lesser abundant ions, correct?

A. No.

Q. The relative abundances? Why don't

you just explain it to me.

A. Well, I thought I just said. But you have to look in the testosterone inside the sample for three diagnostic ions, and their relative abundance must be compared -- should be compared to those of a reference standard, and it must match.

Q. When you say "their relative abundance," you're comparing the relative abundance of the 432 ion to the other ions that you obtained, right?

A. It could be. That depends on what the lab would select as ion.

Q. Okay. And the reason that you're doing this is to make sure that you have properly identified testosterone and epitestosterone, correct?

A. Well, for -- I must say something.

For some substances such as testosterone or epitestosterone, those that are of significant concentration, that is possible; but for epitestosterone, which is often small when testosterone -- when you have a high T/E

value, I have not seen often a lab able to meet the criteria for identification on epitestosterone.

There's a difference between your limit of quantification and your limit of identification for epi.

Q. But for identification purposes for testosterone and epitestosterone, you're looking at the same ions, right?

A. Yes.

Q. If we can take a look at the actual lab document package. Let's look at the A.

MR. WEISS: Exhibit 24.

Q. Yes, Exhibit 24.

I'm sorry. I thought I had the pages pulled out.

On the A analysis in Exhibit 24, if you can turn to Page USADA 46.

A. I'm sorry. The version I have, the pages are missing.

MR. CAMPBELL: It looks like the -- the Bates number is cut off.

A. I see. Thank you.

Q. This is the instrument control parameters for the A Sample GC/MS, correct?

A. This is the -- yeah, the setup for the screening assay.

Q. Okay. And then the pages that follow that are the actual chromatograms on the screen, right?

A. The chromatograms on the -- on the screen?

Q. Yes.

A. You have no chromatogram on the screen.

Q. The pages starting at USADA 51 and 52.

A. 51 is the blank urine sample, sir. No.

MR. CAMPBELL: 52?

Q. 52 would be the first. Unfortunately, the page numbers got cut off.

But 52 looks to be the first chromatogram.

A. On the blank sample.

Q. If you can turn to USADA 58.

Can you tell me what this is?

A. This is -- you can turn to Page 57, and that is the reinjection of the confirmation sample, the second confirmation, which went

correctly. That was done on the 25th of July by operator Number 10. They reinjected the confirmation aliquot in the screening procedure.

Q. And do you know why they did that?

A. Yes.

Q. Why was that done?

A. Because when they did the first screening of the sample, since -- since they had a problem with the derivatization, they couldn't measure reliably the steroid profile, the concentration of androsterone and etiocholanolone, for one, was not measured correctly. So the purpose for reinjecting the confirmation, done to estimate relatively precisely the T/E value, was run again in screening procedure to obtain the concentration of androsterone and etiocholanolone.

Q. And they reinjected using the confirmation extraction procedure, correct?

A. The confirmation -- the vial produced by the confirmation procedure, yes.

Q. And on the -- they used a different method on the screening versus confirmation extraction procedure, correct?

A. There are slight differences.

Q. On the screening extraction, they add three internal standards, correct?

A. Yes.

Q. And those three internal standards are methyltestosterone, right?

A. Yes.

Q. And Salbutamol?

A. D-3, yes deuterated Salbutamol.

Q. And Androsterone D-4 of the glucuronide, correct?

A. Yes.

Q. On the confirmation extraction procedure, they only add one internal standard, correct?

A. Yes.

Q. And that internal standard is methyltestosterone, right?

A. Yes.

Q. And one of the reasons that you add internal standards is to see if the machine can adequately identify substances that wouldn't ordinarily be in the urine, correct?

A. The purposes of their three internal standards is for Salbutamol D-3 to estimate the amount of Salbutamol that would be present in

the urine sample on screening to see if they had to undergo confirmation, because Salbutamol is a threshold substance.

And the purpose of Androsterone D-4 glucuronide would be for them to check whether the -- and I'm saying this because that would be the reason why we would put this in a screening process -- would be to check to see whether the hydrolysis was complete.

Q. And the chromatograms from this reanalysis are shown on -- well, the chromatogram is shown on USADA 58; is that correct?

A. Yes.

Q. And the calculations of the results is shown on USADA 57, correct?

A. Yes.

Q. If you look at USADA 57, it shows four test- -- methyltestosterone, which was the internal standard that was actually added, that's methyltestosterone was identified using a single ion, the 301.3 ion, right? It's up at the top?

A. Yes.

Q. And for the target -- or I'm

sorry -- for the retention time, it shows as 17.14.

A. Yes.

Q. And then it shows that the target response was 1,731,969, correct?

A. Yes.

Q. And it also shows that the concentration of methyltestosterone was 100 nanograms per milliliter, right?

A. Where those conditions are set, yes.

Q. And then if you turn to USADA 58, the top right chromatogram that says methyltestosterone, that matches up with the figures that we just looked at on USADA 57, correct?

A. Yes.

Q. Now, let's go back to USADA 57, the next identification is Androsterone D-4 glucuronide, right?

A. Yes.

Q. And what USADA 57 shows is that Andro D-4 glucuronide was identified using a single ion at 438.4?

A. This is the target response. Target response.

Q. It says signal 438.4, right?

A. Yes. But if you go to the target response -- oh, yeah, okay. Yeah, the machine run the signal, acquire the ion 438.4, yes.

Q. And then it shows that the retention time was 12.38, correct?

A. This is the retention time. This is -- yeah, this is the retention -- the retention time, yes, shown there, yup.

Q. And it shows a target response of 104,768?

A. A target response, yes.

Q. And if you go to the next page, which is USADA 58, the top middle chromatogram matches that, correct?

A. Yeah. But there is a small -- there is a small peak, but it's -- there's something at 11. -- there's something at 11.789, and there's something at twelve, three -- 12.381, but I don't think it is Androsterone glucuronide D-4.

Q. But it's identified here as, on USADA 57 as Androsterone D-4 glucuronide,

correct?

A. And but this is the standard form.

It is a standard printout.

Q. So you're saying that the documentation package misidentifies this?

A. No. What I'm saying is that you're having an automatic display of what the computer is producing when it's looking at the result of a screening analysis, but -- and you have the target response and the target amount, but it did not measure Androsterone D-4 at 117 nanograms per mil.

Q. How do you know that?

A. Because there was none. And because if you take --

Q. Because it wasn't added, right?

A. It wasn't added, and because what we have there is not what we get usually from the screening with Androsterone D-4, which is -- and you can see the difference with another screening assay, when you put -- yeah, if you can look for it. But if you look at Page 52, when there is Androsterone D-4, you see the real sharp peak there.

Q. So you're saying that what they've identified on USADA 58 at 12.38 is not Androsterone D-4 glucuronide?

A. No.

Q. It's not?

A. No.

Q. So is it your testimony that some substance other than Androsterone D-4 glucuronide is present in the urine sample that was identified by looking at this single ion, the 438.40 ion, in the sample, and it was misidentified?

A. That is not the right retention time. If you compare the retention time, it's not the same.

So, well, this is --

Q. Wait, wait. How is it not the same?

A. Well, if I may say this is an example of a software processing data automatically, so you got numbers.

Q. But if you go back, you were comparing USADA 53 -- I'm sorry -- USADA 52 to USADA 58, correct?

A. Yes.

Q. And the retention time for the peak on both is 12.38, correct?

A. No. Maybe I should change my glasses, but I see 12.138.

Q. Where do you see 12.138?

A. Page 52.

Q. On Page 52. Okay. If you look at Page 51, it's 12.14, which is rounded up. So you're saying that the substance identified is a different substance even though the retention time is within 0.2?

A. It's not the right retention time, sir.

Q. So looking at a single ion combined with retention time on USADA 57 and 58, LNDD has misidentified the substance, correct?

A. No. This is not what I have said. The software gave a number, and those are a target response, and the software gave a number, but never is it said that you have it.

You look at their actual result at Page 57, there is no concentration given there.

Q. On USADA 57 for Androsterone D-4 glucuronide?

A. There was none, and the retention time was not the same.

Q. But it does list a concentration, does it not? On USADA 57, it lists a target response and an amount, correct?

A. And that's what happened with automatic machine integration.

Q. So the machine misidentified the substance. Is that your testimony?

A. Yes.

Q. Well, what substance is it that you believe it's misidentified?

A. No clue.

Q. You have no idea?

A. Nope.

Q. That's a problem with looking at a single ion and retention time and trying to identify substances, correct?

A. I wouldn't say so. When there's nothing, if you're looking for something, and you know it's not there, it's not there. So it cannot have been identified, and there's no peak at the retention time, so ...

Q. Well, I'm a little confused.

If there's anything that the laboratory should be able to identify accurately, it would be the internal standard, right?

A. There's a difference between the data obtained from the -- from the automatic

processing and with what the lab is producing as -- how can I say -- as data that they have processed and validated and confirmed.

So, there's a difference when the lab says the T/E ratio is at 10 and when the computer says it has seen a peak that -- that would be matched as Androsterone D-4.

Q. So you're clear, then, that this substance that's identified as Androsterone D-4 glucuronide within the laboratory document package, it's your testimony that that is not Androsterone D-4 glucuronide?

A. Well --

Q. Correct?

A. Yes.

Q. And you don't know what it is.

A. Nope.

Q. If you can go to USADA 84. This is the injection sequence for the A confirmation, correct?

A. Yes.

Q. And it lists an injection sequence showing, in order, how these things were injected into the GC/MS, correct?

A. Correct.

Q. And it starts with Vial 1, which is sample name i-t-m-s? What is that?

A. Well, I don't know precisely. I haven't asked. I would say it's a -- and it's a guess -- I'd say it's a blank reactive, but maybe it's not, so I prefer to not give a firm answer.

Q. And the last injection, according to the injection sequence, Vial 9, is a positive QC, correct?

A. Yes.

Q. And the purpose of the positive QC is to demonstrate the ability of the machine to properly identify the -- a prohibited substance in an actual urine matrix; is that right?

A. It's to verify the -- yeah, I would say. Yeah.

Q. So -- and to see if the positive QC actually verified the ability of the machine to identify the prohibited substance in a urine matrix, you would have to look at the chromatogram, correct?

A. I would have to look at the chromatogram, yes.

Q. Okay. The chromatograms for this

run are listed at USADA 90 through 96?

A. Yes.

Q. Can you take a look at those chromatograms, and tell me if the chromatogram for the positive QC, which is Vial 9, is contained anywhere in there?

A. For the tp te2? No, I can't find the QC1 T/E.

Q. So it's not in the document package; right? Is that right?

A. No, it's not.

Q. Let's look at the B Sample. If you can turn to USADA 272, which is in Exhibit 25.

A. In -- I'm sorry, sir?

Q. It's USADA 272 in Exhibit 25?

A. Yes.

Q. This is the injection sequence for the B, correct?

A. Correct.

Q. And again, the final injection at Vial 12 is the positive QC, correct?

A. Correct.

Q. And again, the purpose of this is to demonstrate the ability of the machine to locate the prohibited substance in a urine matrix,

right?

A. Yes.

Q. Take a look at the chromatograms in the document package. Those are found at USADA 275 through 287.

A. Mm-hm.

Q. And tell me if you see the chromatogram anywhere for the positive QC on the B Sample.

A. Nope.

Q. So again, the laboratory document package does not have the chromatogram for the positive QC, right?

A. Nope. Right. Mm-hm.

Q. Now, you talked a little bit yesterday about the ISL, the International

Standard for Laboratories. If you can open that up -- that's Exhibit 8 -- and go to Page 22. And look particularly at 5.2.6.1.

MR. CAMPBELL: What exhibit?

Q.   Exhibit 8, yes.

The last sentence of this section says, "In general, the record should be such that in the absence of the analyst, another competent analyst could evaluate what tests had

been performed and interpret the data."

Do you see that?

A.   Yes.

Q.   Given that the positive control chromatograms are not present in the lab doc package, it would not be possible for any analyst to evaluate or interpret that data, correct?

A.   I disagree with you, sir.

Q.   You think the analyst could interpret the positive-control chromatograms from this document package?

A.   I think that I -- no. It says that "the competent analyst could evaluate the tests that have been performed and interpret the data."

So if I may expand on this, the lab did not estimate its T/E value only based on the comparison with the QC sample. It injected --

the lab injected three different standards of testosterone containing different amounts of testosterone and epitestosterone adjusted to a ratio of 6-to-1; and if we look in the confirmation data, if you look at the ratio obtained by the instrument, it is close to six.

So I'm satisfied that when they say they measured six, they calibrated the instrument with that calibration, the ratio for the curve, the theoretical value was six, they obtained close to six, so when they measure it then, it's there.

Q. But your testimony earlier was that the reason you do a positive control is to see if you can properly identify the prohibited substance in a urine matrix, right?

A. No. We're not talking about identification. Identification could be made with any sample containing a standard, a reference standard, of testosterone. Had the lab elected to establish the identity of testosterone based upon the standard they use in one of their points for their calibration curve, that would have been perfectly correct.

Q. So it's your testimony now that a positive control is not used to test the machine's ability to identify a prohibited substance in a urine matrix?

A. We're talking about a quantitative measurement, sir.

So, in this instance, we have a

calibration curve. It's not the only data. If the data is not there, can I, as what I consider myself, as a competent analyst, determine that the T/E value estimated by the lab -- in absence of that data, do I feel that I have the necessary information to form my decision? My answer was yes.

Had I needed the quality control result, I would have asked it.

Q. So you're saying that it is perfectly acceptable to leave chromatograms from an injection sequence out of a laboratory document package?

A. Well, a document patient package contains the information -- contains the information.

If, in my review, I am not satisfied with what I have here, I feel that I can ask the lab for further information. And in that case, I felt that was not necessary, so that -- well ...

Q. So the positive controls that they do here -- the positive control, your answer, is irrelevant. That's your testimony?

A. This is not what I said. But I said

that I didn't need -- if it was not in the documentation package, and I looked at the rest of the data, I felt comfortable that when they say they measure six, it's six, and so when they say they measure 10, I felt that was sounded, and that I didn't need to ask the result of the QC sample.

Q. And the fact that they ran a positive QC urine, and you had no opportunity to look at it, doesn't concern you at all.

A. I had the opportunity -- if I'm certain that -- had I requested that document, it would have been provided to me.

Q. It would have been provided to you?

A. Well, to anyone who would have requested it. And maybe it is in the 1,500 pages that they've produced and I missed it.

Q. Oh, do you think it's in there?

A. No, no. I'm just saying maybe it's there and I missed it.

Q. Okay. But if we request it, that's a little different, because we didn't get it.

A. You are asking for an opinion on this, and I will let you say this.

Q. Well, I can tell you, it's not in

the thousands of pages of documents that we got, but you didn't think it was important, right?

A. I didn't felt it was necessary to form an opinion on their estimation of the T/E value.

Q. Similar to what I asked you yesterday on the IRMS, in the GC/MS analysis, the chromatography is important, correct?

A. Yes.

Q. You need good chromatography to get good results, correct?

A. Yes.

Q. And if you have poor chromatography, then you're going to have inaccurate results, correct?

A. You are going to have trouble, yes.

Q. And good chromatography, in the sense we're talking about, means good peak separation; no matrix interference. We covered all that yesterday, right?

A. Right.

Q. I'd like to mark as -- well, it's marked as G 1351.

If you can zoom in on the largest box, the top right. Actually, go back to just

the main screen first.

This is a chromatogram from your

laboratory, correct?

A. Sir, I'm going to have to say at this point that I'm -- I am particularly annoyed to see documentation extracted from documentation packages produced by my lab when the first pages, it's written as "Strictly Confidential, Reproduction is not Allowed."

You could -- I have no problem in discussing those chromatograms, but you should have asked the permission first to extract documents from --

Q. Well --

A. -- the lab as produced. It is really written on the first page: Documentation package is strictly confidential, as it concerns other athletes' testing.

Q. Well, any identification information has been redacted, as you can see.

If you can focus in on the largest of the chromatograms. This is a chromatogram from your laboratory, correct?

A. Yes.

Q. And the peak at 16.59 is the

testosterone peak, correct?

A. Yes.

Q. And the peak at 16.01 is the epitestosterone --

A. Let me make sure that I have not

missed it, just because I'm mad, so ...

MR. BARNETT: While she's looking, could we have a clarification as to where this came from given Dr. Ayotte's concern?

MR. JACOBS: It came from a laboratory document package that has been completely redacted to protect the confidentiality of the athlete.

MR. BARNETT: And can we ask how it was obtained by Counsel?

MR. JACOBS: No. I'm not going to answer that.

MR. BARNETT: Are you taking the Fifth, Counsel?

MR. JACOBS: No, I'm not. I'm just --

MR. BARNETT: We feel that the source of the document should be identified. We're not asking for the athletes' name, by the way, but he should identify how he received it.

MR. BRUNET: Are you raising your objection before we enter this exhibit as evidence or are you prepared to --

MR. BARNETT: I'm just asking for clarification. I'm not objecting to it being entered into evidence.

MR. BRUNET: Okay. Your observation has been noted, and we will discuss it in chambers.

MR. BARNETT: Thank you.

A. So the epitestosterone elutes at 16 -- -

THE REPORTER: Can you --

A. So the epitestosterone elutes at 16.01, and testosterone at 16.59.

Q. And you would agree that the chromatography shown here for those two peaks is good chromatography, right?

A. No -- no, yes.

Q. You have good separation, and you have no co-elution, correct?

A. Yes.

Q. Now, let's look at, in contrast, some of the chromatograms in this document package. If you can turn to LNDD 27.

MR. WEISS: Exhibit 26.

Q. Exhibit 26, LNDD 27.

This is the chromatogram for testosterone and epitestosterone on the B Sample, correct?

A. Yes.

MR. CAMPBELL: Mr. Jacobs, could you hold up until we find that exhibit, please?

MR. JACOBS: Sure. I'm sorry.

MR. WEISS: Exhibit 26. It's in a separate binder.

MR. CAMPBELL: What's the number?

MR. JACOBS: LNDD 27.

MR. CAMPBELL: Thank you.

Q.   (By Mr. Jacobs) And just to identify it, this is a blowup from the B packet of USADA 277 in Exhibit 25, the first replicate on the athlete's sample.

Can you see the epitestosterone peak that's identified?

A.   Yes.

Q.   You would agree that that peak is not completely separated from the peak going off to the left; would you not?

A.   I would.

Q.   And this is on the B confirmation; you understand that?

A.   Yes, I do.

Q.   If you can turn to LNDD 29, which is a blowup of -- from the B Sample at USADA 280, the confirmation B analysis second replicate of the sample, again, focusing on the epitestosterone peak, you would again agree that that peak is not -- does not show good separation, right?

A.   Yes.

Q.   And because of the lack of separation, the quantification is not going to be as accurate, correct?

A. The quantification is not going to be as accurate, but anyone could see that the testosterone peak is nine times higher than the epitestosterone peak.

Q. So you just eyeball it?

A. Yes, one height, 1,000 and 90,000, yeah. It's more than that, 9 to 1.

Q. Does the ISL say that for T/E analysis on a confirmation that eyeballing it is acceptable?

A. No.

MR. JACOBS: Thank you. I have no further questions.

MR. BRUNET: Thank you, Mr. Jacobs.

Does USADA have any other questions for Dr. Ayotte?

MR. YOUNG: We do not.

MR. BARNETT: We -- we do have one matter to raise briefly.

During the break, I inquired of Respondent's counsel when Mr. Geoghegan would be available to testify, given their request for a delay in his testimony when he was here yesterday.

I'll let them say it, if I misstate this, but what I heard back was that he now has counsel, and he won't be available.

MR. JACOBS: Actually, what I said

is he's not here, and he has counsel, and we would be happy to provide Counsel's information.

MR. BARNETT: And I guess I'm just asking for clarification, given that it was Respondent's Counsel, Mr. Suh, who asked that it be continued, and Respondent's Counsel, Mr. Suh, who indicated that he had retained a friend of his -- or called a friend of his to retain

Mr. Geoghegan, we feel we should have a right to question this witness. And we're now concerned that he's been hidden away, frankly.

MR. CAMPBELL: Mr. Barnett, I mean, if he doesn't want to testify, we don't have the ability to force him, do we?

MR. BARNETT: And that's why we're seeking the guidance of the Panel, because he was here. And it was Mr. Suh who requested it, and we didn't object on that basis.

MR. BRUNET: Well, Mr. Barnett, I would not -- I heard that Mr. Geoghegan has retained other counsel. I would not draw an immediate inference that Mr. Suh advised him not to show up here.

MR. BARNETT: And I'm not suggesting that, but I am suggesting that there's a course of events that suggests we could have asked him questions yesterday, and our agreement was based on the idea that he would then be made available, so we seek the --

MR. BRUNET: So are you making your request of this Panel that we bring him? Because that will be difficult for us to order him to be here.

MR. BARNETT: We will think about it and perhaps seek a different remedy from the Panel as to Mr. Geoghegan in relation to events of yesterday.

MR. SUH: I just want to respond to this.

First of all, we took a break yesterday so that Mr. Geoghegan would have the opportunity to retain and consult independent counsel. Mr. Geoghegan was fired yesterday, as the Panel well knows. There were issues brought up by Mr. LeMond which made it entirely appropriate for him to have independent counsel. We'd be happy to provide the name of that person to USADA's counsel, and they can take it up with Mr. Geoghegan and his lawyer.

To suggest that somehow we continued with the agreement that Mr. Geoghegan would appear here, first of all, is wrong; and secondly, it suggests that somehow he should have been forced to testify without the assistance of legal representation, given the allegations that Mr. LeMond made, is also wrong.

But I just wanted to clarify, since
I don't know if that came out perfectly right

from USADA.

MR. BARNETT: And for the record,
the allegations that he's now admitted to
publicly, and we will be happy to take it up
with the counsel -- with his counsel at this
point.

MR. MC LAREN: We gave him,
yesterday, time to seek legal advice. He's got
that legal advice, and you should take it up
with his counsel.

MR. BARNETT: That's what we're
willing to do.

Thank you.

MR. BRUNET: I guess it's lunch.
1:30, please.

(Recessed from 12:30 to 2:15; Mr.
Dunn was not present.)

MR. BRUNET: Welcome back, everyone.
Just a quick update. Sorry for being 45 minutes
late. I wish I could say that we were out on
the terrace having lunch, but it wasn't the
case. We were meeting in chambers with parties
regarding scheduling.

We have come to an agreement -- or
the parties have come to an agreement that

the -- that there will be close of evidence by next Wednesday, 5 p.m., May 23rd, and our arguments will be presented at a later date that will be arranged between the parties regarding scheduling.

And they've also disclosed to us the upcoming list of witnesses that will be called up until Wednesday, and that list has been closed, so no further witnesses will be called. Tomorrow, Saturday, will be a hearing day in order to conclude the evidence by Wednesday. This has been agreed. Monday -- there will be a special starting time for the hearing on Monday.

Because of witness considerations, we'll start the hearing at 8 a.m. on Monday. And the hearing tomorrow will resume at 9:30, and we'll run from 9:30 until 5, which should also be the case unless I announce it differently for Tuesday and Wednesday.

And with respect to the tabulation of the time that we've been keeping so far, it will be adjusted equally accordingly between the parties.

So we were done with Dr. Ayotte. And please call your next witness.

MR. BARNETT: USADA calls Joseph

Papp.

WHEREUPON,

JOSEPH PAPP,

the witness herein, having been first duly sworn to state the whole truth, testified on his oath as follows:

MR. BARNETT: Did I miss the swearing-in?

MR. BRUNET: Yes.

(Mr. Stephan H. Andranian, Attorney at Law, from the Law Firm of Case, Ibrahim & Clauss, LLP, 575 Anton Boulevard, Suite 1000 Costa Mesa, CA 92626-1946, appearing with Mr. Papp.)

EXAMINATION

BY MR. BARNETT:

Q. Mr. Papp, could you please give us a brief overview of your early cycling career, say from 1989 to 1996?

A. In 1989, I began competing as a junior. In 1994, I passed into the senior ranks, began competing professionally. Competed in Latin America and Europe and had a great success in events like the UCI Pan Am, American

Continental Championships in 1996 when I finished eighth; in various raises, in the United States at the national level; Venezuela one, I was very competitive in the last finishing stages. Competed pretty extensively.

Q. And in 1996, did you take a break in cycling to return to your education?

A. Yeah, I did. I graduated from high school in 1993, and I had a pretty substantial scholarship to the University of Pittsburgh. I went to school first semester and did really well that first semester, but was so passionate about cycling and wanted to pursue a career competing full-time at the elite level that I negotiated with Pitt for them to reserve the scholarship while I went and competed, and had set basically, the goal for myself of passing into the professional ranks with a big -- with an international program by the summer of '96, and -- or at least having the offer for that, or being invited to move to the OTC to train full-time as part of the endurance track program.

Q. Let me ask you about the OTC. Were you at some point invited to join the OTC?

A. Yeah, ironically kind of hedging my bets by the middle of the summer, but for some reason though I finished eighth at the Pan Am's that year. Christian Vande Velde was my teammate. He was, you know, tended to help me out a lot at the end of the event. I was facing a deadline within the time that I needed to register for school, and I said, I'm going to register.

Q. So you took a break?

A. I did. I took a break because I went back to my education.

Q. And for the court reporter's benefit, she's good, but she's not that good. Just let me finish my question -- and then you can -- and let me ask: Have you ever testified in a proceeding, trial, anything before, Mr. Papp?

A. No, I never have.

Q. From 1989 to 1996, when you were cycling, did you ever engage in doping?

A. No, never.

Q. In the events that you were riding, the cyclists that you were associating with during that time, in your opinion, was doping

prevalent around you at least during that time period?

A. During that time period, doping was not prevalent around me.

Q. When did you decide to return to serious cycling?

A. In 2001.

Q. What, if anything, did you notice had changed between 1996 and 2001?

A. I noticed that there was an

incredible difference in the speed of the peloton.

Q. And by speed of the peloton, you mean the times?

A. Everybody was moving faster.

Q. Did you talk to your teammates about this observation?

A. I did talk to my teammates about this observation.

Q. Did they suggest a way that you might catch up with the speed of the peloton?

A. They did. They told me things had changed, and that I should see a particular doctor.

Q. Did you go to that doctor?

A. I did.

Q. What did that doctor tell you was the best way to catch up with the speed of the peloton?

A. The doctor said the only way to catch up with the speed of the peloton was to do a course of EPO.

Q. This was -- this was in 2001.

A. That's correct.

Q. Did you start taking EPO in 2001?

A. I did.

Q. Did you struggle with the decision to begin doping?

A. I did.

Q. And just tell us briefly what pushed you over the top to make the decision to take the EPO.

A. At the time, I felt I didn't have an option to be able to compete in the sport that I loved at the level that I had competed at previously, and that if I wanted to be able to continue to get -- to continue to reintegrate with -- with the sport. That I had to make that -- that choice.

Q. Did you take testosterone in 2001?

A. I did not.

Q. Tell me a little bit about in the brief time period of your career between 2001 and 2006 in terms of the type of events you were racing in.

A. From 2001 through 2006, I competed extensively in multi-day UCI stage races, yeah, in Europe and in Americas, in Asia, in Oceania. I competed extensively in single-day races here in the United States that were ranked on the national racing calendar, and I competed extensively in Italian one-day races in 2006.

Q. During that time period in 2004, did you obtain more information about the use of testosterone in cycling?

A. In 2004, I made the acquaintance of

a Spanish rider. We were competing together in the same UCI event, a 2000-kilometer stage race, and he provided explicit details, information, about the use of testosterone as a recuperative agent in multi-day stage races basically.

Q. And I want to talk to you later about the details of that methodology, but if you would tell us and tell the Panel, when did you first start using testosterone?

A. In the winter 2005.

Q. And why did you begin using testosterone? Was it to increase your performance in cycling?

A. I began using testosterone to improve my recovery in competition, actually, to improve my -- you know, as a vehicle to improving my performance.

Q. Where did you receive the testosterone?

A. I received the testosterone by prescription from a doctor in California.

Q. Did that doctor know you were a cyclist?

A. That doctor did know I was a cyclist, yeah.

Q. Did that doctor know you were subject to testing in events?

A. Yes.

Q. And with that acknowledge, what did the doctor construct for you?

A. A doping program to be able to improve my performance without testing positive in the UCI controls.

Q. Other cyclists referred you to this

doctor?

A. I was referred to him by a physiologist who trained other cyclists.

Q. It was clear in your mind that this was a doping doctor?

A. Crystal clear.

Q. Did you bring with you today the product that that doctor prescribed to you?

A. I did.

Q. Do you have it with you now?

A. I do.

Q. May I approach?

This is the testosterone that you used to improve your performance during your cycling stage races?

A. Yes.

Q. And for the record, the brand name is AndroGel?

A. Yes.

Q. And below that, it says testosterone gel, correct?

A. Yes.

Q. Did you take this testosterone to build muscles?

A. No.

Q. I take it you've learned quite a bit about the practices of doping once you made the decision to start down that path.

A. Yes.

Q. You're familiar with the term "microdosing"?

A. Yes.

Q. Can you just explain for the record what microdosing is?

A. It's the practice of using any doping agent in a quantity sufficient enough to cause a physiological benefit and generate a physiological benefit but without triggering the doping controls that would result in a positive test.

Q. So this was a pretty small dose that you were using.

A. Yes.

Q. Can you just explain a little bit about how, during a stage race, you would use this product in order to avoid detection?

A. Immediately after the race finished and you went to the doping control, and if you had to be tested, as soon as you were in a discreet area, rip the top off of that packet right there, and rub it on your chest or your abdomen, and then --

Q. Okay. Why was it important to rub it on as soon as you knew that you weren't going to be tested on that day?

A. Well, because within 30 minutes you would experience an increase in your serum testosterone level, and if in four hours, if you were deficient in your serum testosterone because of the exertion and the cumulative fatigue you would be experiencing, you'd be back to -- back to your normal baseline level.

Q. You rode for quite a while without the use of testosterone, and then you used it. Can you just tell us the difference that you felt from using this small dose of testosterone during stage races?

A. It was a very noticeable significant improvement in my recovery and, on a day-to-day basis, it had a significant impact on my ability to perform at the same level day after day as opposed to having a decrease in performance because of cumulative fatigue.

Q. And that's important in stage races why?

A. Well, it's important in stage races because the race isn't really won in the general classification by the rider who necessarily starts out the fastest or is the most powerful. It's won by the guy who can recover the best and perform as close as possible to his -- you know, his best baseline level daily.

Q. Were you tested at UCI events while using this AndroGel?

A. Yes.

Q. On how many occasions?

A. Twice.

Q. On either of those occasions, did the testing procedure detect the exogenous testosterone that you were using?

A. It did not.

Q. The T/E screening did not pick it up.

A. That's correct; it did not.

Q. In 2006, did you start riding with an Italian team?

A. I did.

Q. That team name was Whistle?

A. (Nod of head.)

Q. Audibly.

A. Yes.

Q. Did they provide you with

alternative doping substances?

A. Yes.

Q. So you were no longer using the AndroGel.

A. I eventually had exhausted my supply.

Q. And they gave you a number of substances instead.

A. They did.

Q. Just briefly tell us a little bit about what you experienced as you moved up to that level and joined the Italian team with respect to the doping program.

A. It was a more -- a much more organized and sophisticated program, the riders in that team had access to, and were encouraged to take advantage of it, actually.

Q. Was it your opinion you could have stayed on the team if you had refused to take the substances?

A. No, absolutely not.

Q. That was made pretty clear to you?

A. It was very clear.

Q. Were there different levels of drugs that different cyclists on the team received?

A. There were.

Q. Did you have to earn your way up to get to the next level of doping; is that a fair characterization?

A. That's one way to characterize it.

Q. During the Tour of Turkey, were you on the substances they had given you?

A. I was.

Q. And during that tour, did you test positive?

A. I returned A Sample that was declared positive, yes.

Q. That time it was above the T/E ratio?

A. No.

Q. Please explain.

A. It was positive for metabolite of testosterone.

Q. When, approximately, was that?

A. May 7th was the date that the -- the stage in which I returned the positive.

Q. And which year was that?

A. 2006.

Q. Have you accepted a sanction for that doping violation?

A. I accepted a two-year sanction.

Q. When you were first notified of that doping violation, did you think about fighting it?

A. When I first was notified I intended to fight it and started the steps to go into that process.

Q. And you knew at the time that you had doped.

A. I knew that I had doped. I didn't know that I had taken this particular agent.

Q. You didn't know which substance the Italian team was giving you?

A. Right. Right.

Q. What made you want to fight it, even though you knew you'd been caught?

A. Well, you know, I wanted to fight it because within the culture of the team, within the culture of some part of the sport, it's -- it's the expected thing to do, because there's so much pressure to protect your teammates, to protect your sponsor, to protect your family, to deny everything, to fight tooth and nail,

because you know that it's not just you who stands to suffer if -- if -- if you test positive. But you do know, at the same time, that you're disposable in the sense that your entire world can be ripped apart because you had a positive test.

Q. You felt pressured to maintain the system of silence about doping in cycling?

A. That's very true. I felt very frustrated, especially with the Italian team.

Q. What happened to -- well, were you

close to -- well, were you close to your Italian teammates?

A. I was very close to all of my teammates. I had teammates who were Italian -- they weren't all Italian.

Q. Okay. Okay. Your teammates on the Italian team.

A. Yes.

Q. And what was their reaction once you tested positive?

A. Their reaction was very -- almost clinical in the sense that it wasn't something shocking or unexpected, and that there was a course of action to follow, you know, not just

as far as formally responding to the announcement of the test or formally following the process to go into arbitration, but, you know, how one would compose themselves publicly, how one would interact with the other riders, and the media, whatever.

Q. Did they cut you off, basically?

A. Well, they did.

Yeah, I mean, they -- when they -- when they, I think -- when they realized there was no way for me to get out of it, they disowned me. These were guys who I sweated blood with, who I would have considered my brothers, and they just cut off contact.

Q. What was it that made you reach the decision to own up to your mistake in practices and accept responsibility for it?

A. What -- what made me own up to the mistakes that I made and what made me -- brought me here is -- it's actually, when my wife told me that she was pregnant with our son, and I realized that, you know, I had a responsibility that extended beyond me. You know, I had a responsibility to my family, to be an ethical parent, to be -- to be a good person, and I also

had a responsibility to the sport that I loved. And at the same time, I had paradoxically, basically, abandoned it by getting mixed up in all of this and making the decisions that I made.

Q. And based on that, you accepted the sanction.

A. I did, yeah.

Q. Is this a reason that the announcement of your sanction was delayed?

A. Yes.

Q. And what is that reason?

A. Because I was cooperating with the U.S. attorneys, and they asked -- U.S. Attorneys' office, and they asked USADA to delay announcement of my suspension until they had made a decision.

Q. You voluntarily decided to cooperate in those investigations.

A. Yeah, I offered to cooperate with those investigations.

Q. Mr. Papp, let me change to a new subject for a minute.

Are you familiar with the practice of monitoring power data in cycling?

A. Yes.

Q. You did that fairly early on in the scope of when that started?

A. I began doing that in 2001, which was very early.

Q. And in that context, let me ask you, did you take testosterone in an effort to increase your functional threshold power?

A. No.

Q. Explain to the Panel the relationship between -- well, let's do this.

I'm putting up Page 15 from Mr. Landis' pretrial brief.

MR. BARNETT: And we'll zoom out.

MR. YOUNG: This is the response or the supplemental?

MR. BARNETT: No. This is the first pretrial brief.

Q. You see where it says, "What does power data mean to a cyclist"?

A. Yes.

Q. Did you get a chance to review this section of their brief last night?

A. I reviewed it, not in great detail, though.

Q. And just so we can get it out of the way: You weren't given any USADA briefs to review, were you?

A. No.

Q. Do you believe that power data is an important consideration in training and competition because power is a function of how hard and fast a cyclist pedals?

A. I would say it's the most important.

Q. And you'll see with me down where we say, Mr. Landis used the PowerTap device during Stage 17.

What, for the record, is the PowerTap device?

A. The PowerTap is a -- it's a hub, and it's a power-monitoring device that can provide the rider, in real-time, an indication of his power in watts.

Q. And this is on Page 16. This is a chart that Respondent has provided that is the power data from Stage 17.

Do you see that?

A. I do.

Q. And you had a brief chance to look
that over?

A. I did.

Q. I want to turn now to Page 17, where there's some representations made next to the blue star.

And let's look at it.

It discusses there being 81 data points in the second sentence. And just for the record: "Out of the 81 data points, Mr. Landis had an average intensity of more than 281 watts in six rides." And the next sentence: In other words, 7 percent of Mr. Landis' rides were more intense than Stage 17."

So, to summarize, out of the 81 data points that they've collected over 2005, 2006, only 17 percent were more intense than Stage 17.

Is that your understanding?

A. Seven percent?

MR. YOUNG: Seven percent.

Q. I'm sorry.

A. Yes.

Q. When I asked you the question about your functional threshold power, did you expect each time you might be dosed with testosterone that your power data would set a new high?

A. No.

Q. What would you expect as the desired result from the testosterone use that you might see reflected in power data?

A. The desired result of using testosterone in small quantities in a race, and, you know, it's more in multi-day races, is to enable the athlete as the race goes on, and as fatigue is building, to come as close as possible to achieving -- or putting out, basically, their best power on a daily basis, day after day, not necessarily surpassing -- well, not surpassing, you know, any record as far as what their attendant power was, or what their actual power was, that they determined for the race, but being able to get back to that level after ten days of racing or after 14 days of racing.

Q. To be as fresh on Stage 17 as Day One, hopefully.

A. Yes. I mean, you know, I don't know Mr. Landis. I don't have any ill will to him. I don't -- I don't know him. I don't really have any opinion on any of this other than to say -- to share my experience and to say that testosterone can definitely improve your

recovery and how you feel. You get to whatever your best functional threshold of power is after ten days of racing.

Q. Well, let's, if you will, I wanted to look at some claims that Respondent's counsel, Mr. Suh, made in opening argument. And these are claims in the context of things you would have to believe to believe USADA's case.

The first, "Floyd, knowing that he would be tested while in the lead or attempting to gain the lead in the Tour" -- and I'll cheat ahead to the next slide, and then we'll come back -- "took testosterone." And then we'll come back.

In your experience, do riders ever take testosterone knowing that they very well may be tested?

A. Yes.

Q. Why, in your own experience, based on your own expertise doing it, are they comfortable enough to try to get away with that?

A. Well, I think they're comfortable enough to try to get away with it because testosterone isn't a substance that you need to use or that you would use in a single, exclusive

time. It's something that you can use prophylactically in very small quantities, that don't trip the T/E ratio tab. They don't necessarily boost your energy, you know, your ratio so out of whack that you would be subjected to the controls that actually could detect it.

And you could easily, you know, stop using it for 24, 48 hours and definitely clear any potential metabolites out of your system but, at the same time, not see such a significant drop in your serum testosterone level that you would not still experience a benefit of what you'd done two days beforehand, for example.

Q. So if you knew for sure that you might be tested one day, you might take a day off?

A. Definitely.

Q. Let's look at the next slide. "Again, in order to believe USADA, you must believe that Mr. Landis took testosterone, a drug that" -- and we're now in big bold underline -- "does not have a beneficial effect during a race like the Tour."

Is that a true statement?

A. I don't believe that that's a true statement.

Q. In fact, you know that it -- from your own personal view, that it does have an effect during the stage race?

A. I know from my own personal

experience and quantitative analysis of my own power output that it definitely has a therapeutic benefit, a beneficial effect, during a stage race. I have never ridden in the Tour de France, but I have ridden more than enough UCI multi-day stage races, up to 2000 kilometers, that you can get a beneficial result from testosterone quantities in small quantities.

Q. So they've asked us to believe two things so far, and you believe in both.

You believe that -- sorry, I lost my first slide. You believe that it's possible that Floyd, knowing that he would be tested while in the lead or attempting to gain the lead in the Tour, took testosterone. You believe that part.

A. It's certainly possible.

Q. What you don't believe is that testosterone is a drug that does not have a beneficial effect.

A. It's such a false statement that it makes me angry. And, yeah, why am I here? I'm not getting anything out of being here, and in reality, I have everything to lose by being here. My friends from cycling are gone; they cut me off. My team has cut me off. I'm in the danger of not being able to work in the field that I want to work in now. I'm no longer cycling. But that just denies what's happening in cycling. It denies the doping that exists. It denies the methodologies that are there, and it's just -- it's just ...

Q. Let's look at the next claim.

"In an amount too small to raise his testosterone level above that of an average male."

Were you taking testosterone gel in order to raise your testosterone above normal levels?

A. No.

Q. Explain, again, why you took it with respect to testosterone levels.

A. If you're using testosterone in small quantities to recover during a stage race, you're hoping to raise your serum testosterone back to the normal, you know, rested level as opposed to, you know, the decreased state that it would be in after extensive cumulative fatigue. Because what happens is, your cortisone goes up and your testosterone goes down, and if you're microdosing testosterone, you can bump that testosterone back up to your -- your normal rested level.

It's not about -- not about being a bodybuilder or something like that and using some crazy dose because you're trying to build 25 pounds of muscle mass. It's just about recovering on a daily basis as effectively as possible.

Q. About keeping your muscles as fresh as possible during long stages.

A. Exactly.

Q. Let's look at one more.

That in four of the five tests alleged to be positive, his screening tests were absolutely normal.

Now, you don't have the Ph.D. that

some of our witnesses do, but you know what is meant there by screening tests, correct?

A. Yes.

Q. The T/E tests?

A. Yes.

Q. Based on your experience in cycling and your own practices, does it all surprise you that somebody could be using testosterone and essentially beat four out of five T/E screens?

A. No, I'm here to tell you that I did it in two out of two tests.

Q. When you were controlling your own dosages, you went two for two on the T/E screen?

A. That's fair, yeah.

Q. Thank you, Mr. Papp. I have no further questions at this point.

MR. BRUNET: Thank you, Mr. Barnett.
Mr. Suh.

MR. SUH: Thank you.

EXAMINATION

BY MR. SUH:

Q. Hello, Mr. Papp.

A. Hello, sir.

Q. You said you have been cooperating

with the U.S. Attorneys' offices?

A. That's right.

Q. And which U.S. Attorneys' offices are you cooperating with?

A. Okay. I met with the U.S. Attorneys' office in the Southern District of California.

Q. Which is in San Diego, correct?

A. Correct.

Q. And did you meet with any member of U.S. attorneys' office in New York?

A. I did not.

Q. So the only U.S. attorneys' office you're cooperating with was one in San Diego?

A. The only U.S. attorneys' office where I traveled to speak with representatives of the federal government was in San Diego.

Q. I just wouldn't include just the places you've traveled to. I'm just talking about any contact with any -- how about this?

Have you talked to any member of the United States Department of Justice about doping violations?

A. Yes.

Q. And which representatives of the

Department of Justice?

A. Those based in the San Diego office.

Q. Just those in the San Diego office?

A. That's correct.

Q. And that's in conjunction with the doping case, correct?

A. I don't know what it's in conjunction with. I'm not privy to the details of their investigation.

Q. Well, what was the purpose for you to meet with them?

A. To share information.

Q. And what kind of information did you share with them?

A. The same kind of information I'm sharing here today.

Q. So you were sharing information with them in conjunction with the doping violation, correct?

A. I shared with them the same kind of information that I'm sharing here today.

Q. Have you been notified that you were

a potential subject of their investigation?

A. I have not.

Q. So you don't know whether you are a

subject or not a subject of their investigation, correct?

A. As of this time, I have not been notified that I'm a subject of their investigation.

Q. And when was the last time you met with the U.S. attorneys' office in San Diego?

A. I don't remember the exact date, actually.

Q. Approximately.

A. Earlier this year.

Q. And was that the last meeting you were supposed to have with the U.S. attorneys' office?

A. I met with them once.

Q. And do you have a lawyer who's representing you in conjunction with that contact with the U.S. attorneys' office?

A. I had a lawyer who represented me at the meeting.

Q. And what is that lawyer's name?

A. Stephan Andranian.

Q. Now, you said that you don't know Floyd Landis, correct?

A. That is correct.

Q. Have you ever spoken to Floyd Landis?

A. I have not.

Q. Have you ever raced on the same team as Floyd Landis?

A. I have not.

Q. Are you friends with any of his teammates, his former teammates at Phonak?

A. At Phonak?

Q. Yeah.

A. No.

Q. And you weren't participating in the 2006 Tour de France, were you?

A. The last time I checked, I hadn't ridden the 2006 Tour de France.

Q. And you didn't participate in the 2005 Tour de France?

A. Nor did I participate in the 2005 Tour de France.

Q. And you didn't participate in the 2004 Tour de France?

A. I haven't participated in a single Tour de France.

Q. And how many times have you won Pyrenees?

A. I think you know the answer to that question.

Q. I'm asking.

A. I've never won Pyrenees.

Q. How many times have you won the Tour of California?

A. I've never won the Tour of California.

Q. How many times have you raced in Pyrenees?

A. I've never raced in Pyrenees.

Q. How many times have you raced in the Tour of California?

A. I've never raced in the Tour of California.

Q. How many times have you raced in the Tour of Georgia?

A. Nor have I raced in the Tour of Georgia.

Q. You said that you -- do you hold any national championship title?

A. I do not.

Q. You were racing in -- between 1989 and 1996, correct, you said, in your testimony?

A. That is correct.

Q. And were you racing here in the United States?

A. I raced in the United States and internationally.

Q. And where internationally did you race?

A. In Europe and Latin America.

Q. And which team did you race with here in the United States?

A. When?

Q. Between 1989 and 1996?

A. Various teams.

Q. Can you name them for me, please?

A. Give me a specific year, and I'll be glad to name it.

Q. Sure. 1996.

A. Was racing professionally with the Pittsburgh Power, which was a professional team within the national cycling.

Q. Pittsburgh Power.

A. That's correct. It was owned by Frank O'Haren (phonetic spelling.)

Q. What about 1995?

A. Also with the Pittsburgh Power.

Q. What about 1994?

A. With the Pittsburgh Power in the United States, and competing nation- -- internationally with the national team.

Q. 1993, same: Pittsburgh Power?

A. No, in 1993, I was a junior. I

wasn't competing in the senior ranks.

Q. So the Pittsburgh Power was a -- was the only team that you participated in -- you raced with from the time you were a junior, until the end of 1996, correct?

A. No, it's the team that I competed with in one particular league of professional racing.

Q. Did you participate or race with any other team during that time frame?

A. I did.

Q. And what are the names of those teams?

A. Again, from -- during what time period?

Q. From, say, the time you were -- the time after you were a junior?

A. So starting in 1994?

Q. Mm-hm.

A. In the United States, I competed

with a team called KHS, which was sponsored by the KHS Bicycle Company, and that included Matt Eaton, who was the winner of the 1983 British Motor Racing; and also, a European professional, 7-Eleven, which included Rob Acciavatti, who would go on to compete in the professional race in Spain.

Q. And so, but you didn't win the Milk

Race, right?

A. No, I'm merely giving you the kind of details that you're asking for about the teams.

Q. And then you returned to racing in 1996, you said, or --

A. No.

Q. What happened after 1996 with your racing career?

A. At the start of the 1996 season, I decided that if I hadn't, by the middle of the summer, by the time it was the deadline to return to register for that fall university session, that I would not continue to compete, if I hadn't secured an invitation to live full-time at the Olympic Training Center or got a contract for the 1997 season with an

international professional team.

Q. And did you have a contract?

A. I didn't. I made the decision to go back to school and, a couple of weeks later, received the invite to move to the Olympic Training Center full-time.

Q. So is it that you chose not to get a contract, a professional contract, after 1996, or you weren't able to because of whatever circumstance?

A. No, I had set a deadline based on

when I needed to -- what the deadline was for registering for classes at my university if I was going to reactivate my scholarship. And when that deadline came, I hadn't signed a contract to either compete professionally with an international team or to move to the Olympic Training Center, and I registered for classes.

Q. So, your deadline was that, by the time your class registration started, you wanted to have a professional contract, but you didn't, so you went back to school. Is that fair?

A. That's fair.

Q. And then after that deadline had passed, without a professional contract, you

started racing again, correct?

A. No, I completed my undergraduate education.

Q. Okay. And then when you returned -- when you completed your undergraduate education, you returned, and you described during your direct testimony that you noticed that the peloton was going faster, correct?

A. That's correct.

Q. And that you that you were referred to a doctor, correct?

A. That's correct.

Q. And the doctor advised to you take EPO, correct?

A. That's correct.

Q. And EPO -- you're familiar with EPO. It's a drug that increases your hematocrit level, right?

A. It increases your red blood cells, yes.

Q. And it is not testosterone, correct?

A. That's correct.

Q. But you weren't taking testosterone in that period, that 2001 period, correct?

A. That's correct.

Q. All right. Now, can you describe what the effect of EPO was on your bike-racing career?

A. I can describe the effect of it on my physiology.

Q. Well, could you describe what the effect of EPO was on your bike racing, your training, your racing, your results?

A. No. I mean, EPO was a drug that -- I'm sorry, I don't understand the question, what you want to know.

Q. What -- you described in great detail what effect testosterone had on your training and racing. So my question is, when you started to take EPO, can you describe what effect EPO had on your training and racing?

A. EPO raises your basic -- increases

your overall capacity, basically, by increasing your hematocrit and putting more red blood cells into circulation and giving you a greater oxygen-carrying capacity. Is that the information that you want?

Q. No, no. I'm asking -- you were describing before that testosterone had a beneficial effect for you, and you were

describing the effects, so I'm asking you what beneficial effects did EPO have for you?

A. I just told you. That it raised my hematocrit, that it increased my oxygen-carrying capacity, and those are the direct benefits, the direct positive effects, of taking the substance.

Q. Were you measuring your hematocrit level?

A. When?

Q. When you were taking EPO. When you first started taking EPO, did you go get blood tests and measure your hematocrit level?

A. Of course.

Q. I'm sorry?

A. Of course.

Q. Did you notice it had a natural effect on your racing and training?

A. What do you mean? By quantity -- please explain "effect." I mean, what is that?

Q. Effect is that -- what effect -- I don't know. It seems to me to be an easy -- a pretty basic word. What did it do for you -- I'm not asking for it -- for the increase of your hematocrit level. I'm asking for you to

describe the same way you described for testosterone, and you seem to be describing them in two different ways. Describe for me the beneficial effect, how you felt, what impact it had on your racing or your training, when you took EPO. Did it make you faster?

A. It increased my functional professional power. It increased my ability, everything, the absolute value of the watts that I could maintain at my threshold.

Q. And when you started taking EPO in 2001, did you take it in 2002?

A. Yeah.

Q. Did you take it in 2003?

A. Yeah.

Q. Did you take it in 2004?

A. Yes.

Q. Did you take it in 2005?

A. Yes.

Q. Did you take it in 2006?

A. Yes.

Q. Did you take it all the way up until the time that you got caught in your doping violation?

A. Yes.

Q. Now, at the same time that you started taking EPO, did you take any other performance-enhancing drug?

A. Yes.

Q. What other performance-enhancing drugs did you take during that time frame?

A. Could you restate the time frame that you'd like?

Q. 2001 to 2006.

A. Caffeine, for example.

Q. Any other performance-enhancing drug?

A. As we're talking earlier, with the Italian team, there was a doping program, but I don't -- I can't speak to the specifics of the actual substances, because I really didn't know.

Q. I'm sorry, I can't hear you. Your voice is --

A. I said I can't speak to the specifics of the actual products that I was being administered, because I don't know what they were.

Q. Aha.

So the Italians were giving you -- was it the Whistle team?

A. Whistle was the team that I was competing with in 2006.

Q. That team was giving you substances that you didn't know about. You didn't know what you were being given, correct?

A. I would hesitate to say that the team itself was giving them to me. The team was --

Q. The doctor, the team doctor?

A. No.

Q. The coach?

A. An individual.

Q. A person associated with the team?

A. I can't say how he was associated with the team.

Q. Well, what was his name?

MR. BARNETT: I'll object on relevancy grounds.

MR. BRUNET: It's overruled. Please provide the name.

A. I would like to speak to my counsel before I answer any questions.

MR. BRUNET: You may.

MR. BARNETT: Can we not do it near an open mic?

MR. BRUNET: I assumed they would

not.

We'll be back in 15 minutes.

(Brief recess taken from 3:02 to 3:25 p.m.)

MR. BRUNET: Go on ahead, Mr. Suh.

MR. SUH: Witness is considered sworn.

EXAMINATION (cont'd.)

BY MR. SUH:

Q. Mr. Papp, when we left off, I believe the last question was who was it at the Italian team that you were racing with which is the Whistle team --

A. Yes.

Q. -- and that's Whistle as in -- well, whistle --

A. Whistle.

Q. -- whistle you blow on, right? Okay.

A. That team has changed its name, too.

Q. And what has it changed its name to?

A. Cinelli something-something-something. It's registered out of San Marino this year.

Q. Okay. So, while at the Whistle team, you were given performance-enhancing drugs, aside from EPO, but you don't know exactly what they were, correct?

A. Right. Is that the question?

Q. Yes.

A. Right.

Q. And who gave you those performance-enhancing drugs?

A. Sandroviacci (phonetic spelling) who was the brother of the director of the team. I don't know. I can't speak to what his official relationship with the team was, whether he was employed by the team or whether he wasn't employed by the team. But I can say, as a team, we were called into meetings, scheduled meetings at different hotel rooms, and different places, and Sandroviacci would show up with a backpack with a cold storage bag in it, and inside the backpack, inside the cold storage bag, were the doping products, and he would distribute them amongst the riders who were competing in that particular event, or who were there prior to the event, or whatever the context was, whatever the situation was. And then he would take the

unused products or the -- the used medical waste, basically, and go away and disappear with it.

Q. And when you took these performance-enhancing drugs, did you ask which performance-enhancing drugs they were?

A. At various times, I asked which they

were.

Q. And what were you told about what they were?

A. They were EPO; human growth hormone; insulin; amphetamine; corticosteroids; thyroid hormone; in some cases, anabolic steroid. I don't know -- not testosterone, but a testosterone-related substance.

Q. So EPO, HGH, anabolic steroids. Testosterone, also, correct?

A. What?

Q. Testosterone, also, correct?

A. No, there was a -- they said steroid. That, I can't specifically say.

Q. So it could have been testosterone; it also might not have been. Steroid -- I mean, testosterone is a steroid.

A. Right, but understand, they tell me

this in Italian. So I'm trying -- like, I didn't see anything, the packaging to it or whatever it was. But I could say definitively EPO and HGH, the cortisone, insulin, thyroid hormone, amphetamine.

Q. Now, you're familiar with each one of these performance-enhancing drugs, correct?

A. Yes.

Q. In your trips down to South America, when you were racing --

A. Yeah.

Q. -- did you ever buy performance-enhancing drugs and bring them back to the United States?

A. While I was in Latin America, I was given prescriptions for pharmaceutical products.

Q. And these pharmaceutical products were performance-enhancing drugs, correct?

A. That's correct.

Q. So you're a drug trafficker too; is that correct?

A. No, I'm not.

Q. Well, these prescriptions that you received for performance-enhancing drugs, you got in Latin America, correct?

A. That's correct.

Q. And you bought performance-enhancing drugs and brought them back to the United States, correct?

A. That's correct.

Q. Did you have the proper authority from the FDA or other U.S. authorizing bodies to allow you to do that?

A. Well, my understanding is that the FDA allows for an individual to import, you know, up to six months', I think, worth of any particular substance that is prescribed by a doctor for a medical use.

Q. For -- I'm sorry -- a what?

A. For a medical use prescribed by a doctor.

Q. And then you brought it back to the United States, correct?

A. That's correct.

Q. And then did you sell them to other people?

MR. BARNETT: Objection. I believe what's occurring here is Mr. Suh is trying to move the witness into an area where the witness would be uncomfortable in order to attempt to

exclude his testimony. What is the possible impeachment relevance of this line of testimony? Is he trying to establish that he took more drugs? That's not impeachment.

MR. BRUNET: Mr. Suh.

MR. SUH: I'll move on.

MR. BRUNET: Okay. Thank you.

Q. (By Mr. Suh) So prior to the time that you were at the Italian team, I believe you were traveling down to South America prior to 2004, correct?

A. Yeah.

Q. And it was during that time you bought other performance-enhancing drugs and used them prior to 2004, correct?

A. That's correct.

Q. So beginning in as far back as 2001,
when you started taking EPO, you also took a
wide range of other performance-enhancing drugs,
right?

A. I took other performance-enhancing
drugs, sure.

Q. And do you have a record of when you
took which performance-enhancing drugs?

A. No, I don't have any record here of

when I took which performance-enhancing drugs.

Q. Okay. So you took EPO, HGH,
anabolic steroids, corticosteroids, thyroid
hormones, amphetamines, sometimes knowing what
they were, and sometimes not knowing what they
were, correct?

A. That's correct.

Q. And then isn't it also possible that
when you were with the Italian team, because of
the language barrier, you might have also taken
some performance-enhancing drugs you didn't even
know what it was.

A. Sure, of course.

Q. You're not an andrologist, are you?

A. No, I'm not.

Q. You've never done any studies on
testosterone, have you?

A. No, I have not.

Q. You've never done any studies on

EPO, have you?

A. No, I'm not a scientist.

Q. And when you were taking testosterone, was there ever a time -- let me ask you this question: You indicated that you had resolved your case with USADA, correct?

A. I signed an agreement accepting a two-year sanction for it.

Q. And has there been a public disclosure of that case?

A. Not to my knowledge.

Q. I would like to show you what is the United States Olympic Committee's anti-doping policies. These are the rules.

I would like you to look at this rule. This one right here.

Can you read it?

A. Do you want me to read it out loud?

Q. I will read it to you.

"No later than two business days after it has been determined in a hearing in accordance with the USADA protocol that an anti-doping rule violation has occurred or such a hearing has been waived or the assertion of an anti-doping rule violation has not been timely challenged, USADA shall publicly report the disposition of the anti-doping matter."

Do you see that rule?

A. I do.

Q. Okay. You resolved your case without a hearing, correct?

A. I signed the agreement yesterday resolving my case.

Q. Yesterday? You resolved your case yesterday just prior to coming here to this proceeding, right?

A. I formally signed the document yesterday.

Q. Did you agree, as part of your deal, to give up any of your prior titles?

A. I don't have a deal.

Q. Have you been told whether or not you would be investigated by USADA for all of the other things that we've talked about here today, all of your other doping violations, that we've talked about here today?

A. I don't understand.

Q. Well, during your testimony here today, you've talked about use of all different kinds --

A. Sure.

Q. -- of performance-enhancing drugs.

Have you had discussions with USADA about what the potential disposition of all of those other potential doping violations would be?

A. No.

Q. Is that going to wait until after this appearance here today?

A. Sorry. I don't understand what you mean. I signed the agreement yesterday to resolve the case.

Q. Well, you resolved the one case. You resolved the case -- do you recognize this letter to you --

A. Yes, I do.

Q. -- dated June 30th? This is the case you resolved.

I'll mark this as an exhibit, GDC exhibit. You resolved this case, right?

A. To the best of my knowledge, yes.

Q. But you didn't resolve all of the other potential doping rule violations that you've talked about here today.

A. No. You'd have to consult -- you'd have to speak to my attorney who's with me to understand the exact wording of the agreement.

Q. Did you agree to give back any of the prize money that you won in any of the races in conjunction with your doping violation in?

A. I -- in the agreement it states that

I'll give up the prize money and any titles that I have won or medals.

MR. SUH: No further questions.

MR. BRUNET: Thank you.

EXAMINATION

BY MR. BARNETT:

Q. Mr. Papp, I just want to --

MR. MC LAREN: Just a minute. Mr. Suh, are you going to make that an exhibit?

MR. SUH: Yes, I will.

MR. MC LAREN: You will file it with us later?

MR. SUH: In fact, I will do it right now.

(GDC Exhibit 1359.1 was marked for identification.)

Q. (By Mr. Barnett) Mr. Papp, I just want to clear up some potential confusion.

Prior to joining the Italian team, you were fully in the possession of the knowledge of what you were taking, correct?

A. That's correct.

Q. And there was a point where you were taking EPO, correct?

A. Yes.

Q. And I think you mentioned caffeine.

A. Yes.

Q. Was there -- and this is, to place a time period on it, between 2004 and 2006?

A. Yeah.

Q. Or between 2000 -- yeah, 2004, 2006, you were taking EPO, caffeine. Was there any other substance other than testosterone you were taking?

A. I, on occasion, took cortisone or -- EPO was the main, most significant drug.

Q. And then at some point you consciously added testosterone to that regimen, correct?

A. Yes, that was in 2005.

Q. And that was the product that you showed us earlier?

A. That's correct.

Q. And did you notice a difference between what you had felt, taking EPO and the other substances, and what now you felt and the benefit you received by adding to the mix?

A. Yeah, I definitely noticed there was a difference, and there was an additional

benefit, but one that was very different, because the testosterone facilitated recovery on a day-to-day basis; meaning that, for example, three days in a row of training, on Day 2 and Day 3, I could do the same amount of work or close to the same amount of work as I could on the first day, so helping in the recovery process.

With EPO, the dramatic and most salient and tangible effect of that was that on one particular day, I could go up the hill faster, I could ride a time trial more rapidly, I could produce more power in any particular moment on a single day, because my -- my power, basically, output -- my power output at my threshold had increased.

So it wasn't -- EPO isn't, you know, a recovery agent, per se. It's something that has a dramatic effect. It affects your ability, your absolute speed, basically, because it changes your absolute power output, where, with the testosterone, it was something that, you know, day after day would help you get bumped back up to that absolute level.

Q. And that's what made it so effective

during stage races?

A. Yeah, and it really changed my ability to compete in stage races, and it really, you know, added that dimension to my ride, I guess, basically, and the recovery.

MR. BARNETT: Thank you, Mr. Papp. Nothing further.

MR. BRUNET: Mr. Suh.

MR. SUH: Yes, very briefly.

EXAMINATION

BY MR. SUH:

Q. Two questions. The first question is, so it's your testimony here today that, although you were taking all of these other performance-enhancing drugs, it's the microdose of testosterone that is the effect that you truly felt in helping you in multi-day stage races. That's your testimony, correct?

A. Testosterone was the only drug, the only -- the microdosing testosterone was the only methodology that I employed specifically to improve recovery in a multi-day stage race, the only.

Q. That's your testimony. Your

testimony's that the microdose of testosterone is what really helped you, notwithstanding all of the other performance-enhancing drugs you were on?

A. That's exactly what I'm saying because of the fact that the other products were never used with the intention of improving recovery during a multi-day stage race, and it's a very clear distinction that the effect of testosterone as a recuperative agent in a multi-day race is very different than the effect of EPO in a single-day race.

Q. I'd like to show you Part 14, the anti-doping rules of the UCI, and I'd like to turn your attention to the definition of trafficking.

Do you see that the definition of trafficking is to sell, give, administer, transport, send, deliver, or distribute a prohibited substance or prohibited method to any person either directly or through one or more third parties, but excluding the sale or distribution of a prohibited substance, for a genuine and legal therapeutic purposes. And that the penalty for trafficking is

substantially greater than two years, even on a first offense.

Did you know that?

A. I wasn't aware of that.

Q. Did anybody here talk to you about resolving your trafficking case --

A. No, they did not.

Q. -- in exchange for your testimony here today?

A. No. No one talked to me about it in any context.

Q. Is this trafficking a component of what you were discussing with the U.S. attorney's office in San Diego?

A. No, it's not.

MR. SUH: No further questions.

MR. BRUNET: Thank you.

MR. MC LAREN: Mr. Suh, are you going to give us that exhibit?

MR. SUH: We'll make it an exhibit right now.

MR. JACOBS: That's Exhibit 1- --

MR. WEISS: That was Exhibit 1 on --

MR. MC LAREN: Yes, the letter.

(Multiple discussions concerning the

exhibit.)

MR. BARNETT: Can we instruct the witness that he's free to go?

MR. BRUNET: You're free to go.

Okay, we'll take a four- to five-, maximum, minute recess.

(Brief recess taken from 3:45 to 3:51 p.m.)

MR. BRUNET: Welcome back, everyone.

Thank you for respecting the five-minute recess.

Would you please call -- who is the next witness. Is it Counsel for Landis?

MR. JACOBS: Mr. Chair, because of scheduling issues, we've agreed we're going to call Dr. Goldberger out of order.

A. Thank you.

WHEREUPON,

BRUCE GOLDBERGER, Ph.D.,

the witness herein, having been first duly sworn to state the whole truth, testified on his oath as follows:

MR. JACOBS: May I proceed?

MR. BRUNET: Please do.

EXAMINATION

BY MR. JACOBS:

Q. Dr. Goldberger, can you summarize your educational background for us?

A. I have a B.A. degree in zoology from Purdue University and an M.S. and Ph.D. degrees in forensic toxicology from the University of Maryland School of Medicine.

Q. Can you also summarize your work experience as it relates to drug testing?

A. I entered the field of forensic psychology in 1982, and during that time, I worked on the bench as a chemist and continued to work on the bench as a chemist up until the mid 1990s. I held several positions, including assistant toxicologist at the office of the chief medical examiner in Baltimore, Maryland; was promoted to laboratory manager at that office; and then moved to University of Florida; and I've maintained a position there since then.

Q. What is your position at University of Florida?

A. I'm professor and director of toxicology. I work in the College of Medicine in the department of pathology and psychiatry.

Q. In the area of toxicology, what do you do on a day-to-day basis?

A. I'm director of a forensic toxicology laboratory that's responsible for performing death-investigation work for medical examiners across the state of Florida, and we process about 3,000 cases per year. These are blood and urine tissue samples for drugs, therapeutic drugs, over-the-counter drugs, drugs of abuse, illicit drugs. And we also assist the Florida Highway Patrol and the sheriff's offices throughout the state of Florida in traffic homicide investigation.

Q. Do you use GC/MS in connection with that work?

A. GC and GC/MS every day.

Q. Do you have any relevant certifications in toxicology?

A. I'm a diplomate of the American Board of Forensic Toxicology, and I'm a certified chemist by the National Registry of Certified Chemists.

Q. Do you hold any positions with any

associations related to toxicology?

A. Well, one that's related to --

overall to the field of forensic science is I'm president -- the current president of the American Academy of Forensic Sciences, headquartered out of Colorado Springs, Colorado. I became president of the organization in February and will continue in that position until mid February of 2008.

I'm also on the Board of Directors of the Society of Forensic Toxicologists and a member of other organizations, including the International Association of Forensic Toxicologists.

Q. Do you participate in an organization NCCLS?

A. I did, some time ago.

Q. What is that organization?

A. NCCLS, I believe, stands for National Clinical Chemistry Laboratory Standards. They've changed their name recently, and I don't know what it is off the top of my head. But they were responsible, and continue to be responsible, for the drafting of guidelines in the fields of chemistry -- this would be clinical chemistry -- and also toxicology.

Q. During what period of time were you involved with NCCLS?

A. It was in the, say, around 2000 to 2002.

MR. SUH: I'm sorry to interrupt. I've just been informed that Mr. Papp is in front of the media right now giving interviews, which is contrary to the Panel's order that our -- we make no public comment.

MR. BRUNET: My understanding of the Panel's order is that the parties can -- or their agents or their representatives can make comments, and Mr. Papp is a witness.

MR. SUH: So it's okay if our witnesses make public comments?

MR. CAMPBELL: That was my understanding that witnesses who weren't associated with the parties could talk.

MR. SUH: Okay. Thank you.

Q. (By Mr. Jacobs) I'm sorry.

During what period of time were you involved with NCCLS?

A. From about 2000 to 2002 is my recollection.

Q. Did you work at all with anyone who

is associated with USADA during that period of time with NCCLS?

A. Yes, Dr. Larry Bowers.

Q. Can you describe what you did with Dr. Bowers in that regard?

A. This was a committee that was given the responsibility to draft guidelines titled, Gas Chromatography Mass Spectrometry Confirmation of Drugs. And Dr. Bowers was the chair holder or chairman of the committee, and I was a member of that committee, and we met on several occasions and worked together on the drafting of this document.

Q. Do you have any editorial positions with any journals in toxicology?

A. I'm the editor in chief of the Journal of Analytical Toxicology. It's the principal journal in the field of forensic toxicology. I also serve on the editorial board of the Journal of Forensic Scientists.

Q. Can you give us an estimate as to how many times you've testified as an expert witness in court?

A. In court proceedings, about 125 to 130 times.

Q. In what types of cases are those?

A. Well, primarily, they're related to the work that I do at the university. So I'm called as a state's witness in the prosecution of DUI and DUI/drug cases.

Q. And what subjects are you testifying about generally in those cases?

A. Oftentimes, the work that we conducted is in our laboratory, so I describe to the jury the techniques used to come to the conclusion or a result that I'm describing to the jury. I'll also discuss the pharmacology and toxicology of the drugs involved.

Q. Any other consulting experience related to drug testing that you've done?

A. I'm a consultant to the National Football League Players Association, and I've held that position since November of last year.

Q. What do you consult with the NFL Players Association on?

A. On drug-testing issues.

Q. Any other consulting experience?

A. I have a consulting business, separate from the university, so I consult on medical malpractice cases, and I help with

insurance defense of alcohol- and drug-related crashes and, of course, today I'm here to talk about analytical chemistry.

Q. You've also served as a laboratory inspector, correct?

A. Yes. Before I got very busy with my position at the University of Florida, I was a lab inspector for the national laboratory certification program. That's the federal program that certifies drug-testing labs across the country for workplace drug testing. And I was also an inspector for the college of the American Colleges drug-testing program.

Q. And when you went to certify these labs, tell us briefly what you did, what you looked for.

A. Well, most of my inspections were with the national laboratory certification program, and it was a relatively large document that we'd use to evaluate the laboratory's practice, and that included topics such as chain of custody, the screening assays that were used, the confirmation assays that were used, the evaluated quality assurance and quality control programs in place. We would evaluate the

qualifications of the responsible person or the director of the laboratory. Very comprehensive examination or evaluation of the laboratory. And that happened on a six-month basis of all certified laboratories.

Q. And how long did you do that?

A. I think I did that for somewhere about ten years, and then I withdrew myself from the program. I was too busy. These inspections now take three and four days at a time, and I can't afford to be away from my office for more than that time.

Q. During what ten-year period did you act in this laboratory inspector capacity?

A. I will have to refer to my curriculum vitae. And it indicates that it was from 1989 to 2000, so it was actually an 11-year period.

Q. Have you authored any publications, peer-reviewed publications, in the area of GC/MS or toxicology?

A. Well, to cover my publications in total, I've edited two books in the field of drugs of abuse. I've written a total of 18 chapters in the field. One or two were Stone

Press, so some can't be read at this point in time.

In terms of publications in the peer-review literature, and many of them do deal with gas chromatography mass spectrometry, there's a total of 58 of them. One is in press at this moment.

Q. Do you remember approximately when you were retained in this case by Mr. Landis?

A. Not exactly, but I'd say it was about three or four months ago.

Q. Do you have a retainer agreement, right?

A. I do.

Q. And what's the hourly rate that you're charging?

A. $300 per hour.

Q. And approximately how many hours have you spent before right now on the case?

A. I'd say 20 to 30 hours. That doesn't include my travel from Gainesville to California. I wouldn't bill for that. It takes too much time.

Q. You were provided with documents in relation to this case, correct?

A. I was.

Q. You were provided with laboratory documents, right?

A. Yes. From LNDD and others.

Q. And then you were provided with a significant amount of additional laboratory documents, right?

A. A large stack of 1500 pages or so.

Q. And what else have you been provided to review in preparation?

A. The WADA ISL and a number of other documents that have been circulated among our group.

Q. I want to talk about general issues, to start, and then we'll get into some more specifics. I want to start with laboratory documentation.

Can you tell us why laboratory documentation is important generally?

A. Well, when I think of laboratory documentation, I think of the materials that we produced on a daily basis. And in my laboratory, we go through reams of paper on a daily basis, unfortunately. And -- but it's very important to document everything that we do

in the laboratory, because I will have absolutely no recollection of what I did yesterday in my laboratory a year from now, and neither will my staff. So everything that is done in the laboratory from the receipt of a specimen to the storage of the specimen and the transfer and aliquoting of that specimen to the work that's done on the gas chromatograph and the gas chromatograph mass spectrometer, everything is documented and retained.

Q. When you were acting in the capacity of a lab inspector, how did you look at laboratory documentation errors in your assessment of laboratories?

A. Well, I had a story to relate, I suppose.

In my experience as a laboratory inspector, typically, what happens is, before we go into the laboratory to inspect them, the laboratory provides you with a data package, and that's a complete data package, typically, on a case.

So that would include the chain-of-custody documents, the screening documents, the confirmation documents. It also

includes all the other demographic information about the laboratory. And as an inspector and expert in the area, you get a pretty good feeling of what you're walking into, whether you're walking into a lab that's topnotch, mediocre or down at the bottom. So those documents are very important, because they relate to the expert, or the inspector, what goes on in that laboratory day to day.

Q. In your review of the laboratory documentation in this case, did you notice any laboratory documentation errors that caused you concern?

A. Well, as you remember, we had a conversation on the phone and, at first, I was reluctant to become involved as an expert in this case. You convinced me to look at some documents, which I did. I was tardy in that, because I was procrastinating. I wasn't excited about this at all.

And after my review -- you pushed me to review them -- after my review, I saw some glaring issues with the way that chemistry was performed in the laboratory. And at that point, I basically signed on, signed a retainer

agreement with the firm, and here we are today.

Q. Did you also notice mislabeling or misnumbering errors in the documentation?

A. I noticed chain-of-custody errors. There's a -- there's something that we describe here in the States: It's called forensic correction. So if you make a mistake on your document, there's a forensic correction that needs to be done. You cross out the error, and you initial by that error, and you correct the document. There should be no obliteration, obviously no use of whiteout. It's very clear how we correct documents so it can be read in the future.

Q. And why is that important?

A. Again, it goes back to documenting everything that you do in the laboratory. We're all human. I've made mistakes. My staff have made mistakes. But we have processes set up in the laboratory that those mistakes are detected before a report is ever issued.

Q. I want you to take a look at some of those forensic corrections, and we'll start with the A document package, which is Exhibit 24 at USADA 008.

A. That's very hard to read.

Well, actually, this is a perfect example of a document problem that the laboratory provided to us.

Q. Wait a minute. I want to get a copy that you can actually see.

A. But as an expert, I'd like to be able to read it. It's important.

Q. I think this might be a scanning issue.

A. Okay. I'm sorry.

Q. I don't know that this is going to be any better, but that's what we've got. I don't know if yellow's going to show up because this is so dark.

You understand that the sample number of the sample at issue in this case is 995474, right?

A. Yes, sir.

Q. And did you notice on this document there's a 995475 entry?

A. Yes. It's hard to read.

Q. Yeah. I'll circle it. It also doesn't help.

We don't have it in here. Can we go

back to that? There we go. My fault.

So we have a misnumbering. Do you see that this -- well, it wasn't even changed, was it?

A. No.

Q. It's just misnumbered?

A. No, that's correct. That's, in a sense, a fatal flaw. How do we know we've the right sample?

Q. Does that cause you concern to see something like that in a document package?

A. Tremendous concern. When I've done, when -- I've attended retests of testing of athletes' specimens, the first thing I look at is the specimen number. That's key. In this case, it's indicated incorrectly on the form.

Q. There were a number of pages, also, that had cross-outs without the forensic corrections that you mentioned previously, right?

A. Yes.

Q. Let's take a look at USADA 200. We're going to have to keep it big because there's lots on this page.

Now, I counted six. There's 1, 2,

3, 4.

A. There's one that's under the column

1, three lines down, there's a 4 that started as a 2.

Q. Okay. 1, 2, 3, 4, 5. My notes say there's 6. So help me find the 6.

Oh, there we go.

Well, you get the point.

I can't show them all at once.

Seeing a page like this with six cross-outs without any notations or forensic corrections, does that cause you concern?

A. This concerns me. And it's a consistent pattern that you see. I had an employee -- I still have an employee that would do what was done with that 4 that I think started as a 2, and I had to counsel her, and said, Okay, if you start with a 2, and you want to change it to a 4, I prefer you cross it out, initial it, and write the new number. There's nothing wrong with a piece of paper that has that type of correction.

But when you -- when you have errors like that, you get concerned about what was actually done in real practice. Was it 2

there initially, and then, oops, it should have been a 4, and I'll just correct it? Too many possibilities to think of.

Q. But if the response to that is, Well, how does it affect the actual results in the case, what would your answer to that be?

A. It might, it might not. You know, we don't know. But it's the building of problems that we see in the data package that concern me. It's the pattern of mistakes.

Q. And there were a number of other pages that had these similar types of cross-outs, correct?

A. There were several. Actually, more than several.

Q. What effect did the totality of these forensic correction issues have on your opinion as to the reliability of the report and test results in this case?

A. I can't trust it. I think it's unreliable.

Q. Just based on not doing the right forensic corrections?

A. Well, it's based on documentation, what you find in your documentation. This is

what concerns me. This is what I said before. When I inspect the laboratory, I get a good feeling just by looking at the documents before I even step into the laboratory, how well they pay attention to the work that there is to do.

Q. Let's talk about chain of custody a little bit.

Can you describe what a proper

chain-of-custody documentation should look like in your opinion?

A. A chain of custody starts when the specimen is collected and ends when the specimen's disposed. In between, it includes all transfers, aliquoting, movement of the specimen from the site of collection to the laboratory. It includes all steps. Anytime that specimen is handled by a human, it should be recorded.

Q. And what's the purpose of that?

A. So you understand where the specimen's been, you can account for the volume that's been depleted, you can also understand who's handled that specimen, so if you have a question about what was done in specifics with that specimen, you know who to ask.

Q. What's the significance to you if there is an omission in the chain-of-custody documentation?

A. It's terrible. Omissions in the chain of custody demonstrate, again, lack of attention. That's lack of attention to documentation. Now, some people -- I've seen this when I've inspected labs -- that the chain of custody is completed retrospectively, so the analyses are conducted and then the forms are filled out later in the afternoon. That's wrong.

Q. Why?

A. The chain of custody is a dynamic document that should represent the state of that specimen at that time. So if you enter a laboratory, point to a specimen, you could see on the chain of custody -- point -- you could look at the chain of custody and see that it's in storage or it's on the laboratory bench or a T/E ratio. You know exactly where it's at any particular time.

Q. Did your review of the chain-of-custody documentation and the laboratory document package in this case reveal

any issues with the chain-of-custody documentation?

A. Yes, there were.

Q. Let me ask you specifically about documenting laboratory transfers of sample bottles within a laboratory.

In your opinion, is that something that's required for a good laboratory practice?

A. Yes. The transfer of a bottle from one person to another should be documented, even recording the transfer of a bottle to discard or a bottle to the refrigerator or a freezer should be recorded.

Q. So you believe it's important to

document the location of a bottle at all times?

A. Yes. In these big forensic toxicology laboratories that process tens of thousands of specimens in a week, they can go into their computer and tell you exactly where the specimen is. Even a position in a box, they could tell you where it is. It's all tracked.

Q. If you don't have a document showing where the bottle is at any given time, is it okay to fill that in by memory later on?

A. No. As I said, it's a dynamic, a

contemporaneous document. It's filled out at the time of the transfer.

Q. When you see chain-of-custody omissions, what do those omissions -- what effect do they have on your opinion as to the reliability of the results?

A. Again, just like these forensic corrections, it's -- it's -- it's of concern to me. These are omissions that are inexcusable.

Q. We need to talk about some of the specific GC/MS issues in this case.

Starting with the identification of testosterone and epitestosterone by GC/MS, can you describe proper identification techniques by the GC/MS?

A. It involves -- gas chromatography mass spectrometry identification of any drug involves both retention time criteria and then mass spectro criteria. The mass spectro criteria can be broken out into two types or modes: One is looking at data in full-scan mode, which is much like looking at the fingerprint of a drug. Very specific. But oftentimes, it may not be. For example, the mass spectro of epitestosterone looks a lot like

testosterone with very minor changes. So, but that's the fingerprint where you acquire lots of ions for that compound of interest.

The other mode of operation of a mass spectrometer is selected ion monitoring. With selected ion monitoring, which was done in this case, the typical practice across the world is the selection of at least three unique ions for the drug, the plotting and evaluation of those ions through the use of ion ratios.

Q. And that's what the WADA technical document requires when you get to the confirmation step for the GC/MS, correct?

A. Yes. It requires the acquisition of at least three unique ions for the drug or metabolite or steroid of interest.

But in addition to acquiring the three ions, the three ions should be analyzed and evaluated, because what's the use of collecting those ions if you're going to disregard them or just throw them out the window?

Q. Is there anything particularly unique about how you identify steroids as compared to other drugs or substances by GC/MS?

A. Absolutely not.

The application of mass spectrometry for the analysis of testosterone and epitestosterone is just like the use of gas chromatography mass spectrometry in my laboratory to identify cocaine and its metabolites. It's the same approach to the evaluation of the data.

Q. On the confirmation analysis, did you review the documentation to determine if it shows whether LNDD acquired the three diagnostic ions and analyzed them as you just described?

A. They acquired more than three ions, and I'm not sure what all the ions were and for what purpose. But there were clearly the three significant ions for testosterone and epitestosterone monitored by the mass spectrometer during this SIM analysis. But their evaluation of the data -- that's the exhibit -- contains the display of a single ion, 432.

Q. Let's take a look in the document package. Again, it's Exhibit 24 for the A confirmation at Page USADA 0093.

Tell me when you get there.

A. Yes.

Q. And you understand that this is the chromatogram for one of the two A confirmations that was done in connection with this sample?

A. Yes.

Q. Actually, let's start that over. If you can zoom in on the epitestosterone, testosterone chromatogram.

How many ions does this show?

A. This is a display of a single ion, 432.

Q. Now, you say that the documentation shows that they acquired other ions, right?

A. Yes. Before we move on, you'll see that it says ion 432, but because they are operating, I believe, in a -- what's called low-resolution mode with the mass spectrometer, they're acquiring ions 432 to 433. Do you see that? Just carry that yellow across.

Q. What's the significance of that?

A. I can't say exactly, except that may be responsible for the baseline problems in this chromatogram, because I think, technically here, it looks like they're monitoring two ions: 432 and 433. And when I reviewed the data package, it indicates that they're operating in SIM mode, in low-resolution mode.

Now, I've never done that before. And we've talked to other labs, and they don't do that either, so I can't say exactly what the impact of that is. But I'd say it's not typical practice when you're operating the Agilent 5972 or 5973, whatever model this was, in low-resolution mode.

But when it's in low-resolution mode, you're opening the mass filter for the collection of more ions than you would typically expect, and that may be why this chromatogram is noisier or dirtier, than the beautiful chromatogram from the Montreal lab.

Q. If we go back a few pages to USADA 86, tell me what's shown on this page.

A. USADA 86 is the calibration data for epitestosterone and testosterone, and it demonstrates that they evaluated a single ion, one for the internal standard, and two for the drug. It's also common practice to monitor two ions for the internal standard -- at a minimum two ions for the internal standard -- for the same reason we monitor at least three ions for

the drug, is to verify that we don't have interferences at those ions that could potentially affect the quantification, or at least the abundance, the size, of those peaks.

Q. Now, if we go back to USADA 0083 -- I'm sorry -- 82.

Now, USADA, in their brief, said that they acquired the three required -- the three diagnostic ions as required by the technical document and that this page is proof of that.

A. I agree. They -- well, you know, I don't know for sure they acquired the three ions, because there's no demonstration of it other than the fact that we have a printout from the chem station that seems to indicate that they were monitored; but proof is in the paper. We need to see the ions, and we need to see an evaluation of those ions.

Q. Right. Because it's not just acquiring the ion; you have to actually analyze them, right?

A. Exactly.

Q. If we go on to the second A confirmation, USADA 207 -- I'm sorry -- 213.

The first of the two. I'm sorry.

Again, this shows a single ion analyzed, correct?

A. Single ion, and we have that same

range on the top which says 432 to 433, so there seem to be -- well, in this case, they're looking at 432 and a portion of 433.

Q. Let's go on to the B confirmation and see if they did anything differently there. If you turn to Exhibit 25. Let's start at USADA 277.

This is one of the replicates of the sample on the B confirmation. Same thing, right? Single ion analyzed?

A. It is. This chromatogram looks worse though.

Q. How does it look worse?

A. That chromatography's horrible.

Q. Describe what you mean by that. And if you want to get up to illustrate, you're welcome to do so.

A. Can I see the calibration from the quantitation report?

Q. What page are you holding, for the record, in your hand?

A. I'm holding USADA Page 278, which is the quantitation report for this --

Q. If we can get both of them up and then zoom in on that same chromatogram. Zoom in once or twice more. Okay.

A. The reason why I asked for this is because, without this, which is the quantitative report from that chem station, I'm not sure which peaks are which.

Q. Okay.

A. That's partly because these data were collected in selected ion monitoring mode, and there's a display of only a single ion. In a reconstructed chromatogram in my laboratory, since I acquired three ions for the drug of interest, I'd actually display all three at the same time and see them co-eluting at the same time.

So, in this case, we have methyltestosterone, which is the internal standard, at 20.98, which isn't on here, obviously. But we have an epitestosterone and testosterone. According to the report, the epi is 18.56, this peak here, and the testosterone is 19.36, which is this peak here.

The first question is: Why can't this be testosterone? Of course, there're calibrators that go with this run, but there's some concern oftentimes with the quality of those calibrators.

But I'm more concerned about this epitestosterone, and I acknowledge that the concentration of the epitestosterone is, at least in this case, maybe at tenfold less concentration than the testosterone, but it can be quantitated.

Now, on this chromatogram, but we don't see this on all the chromatograms, the Agilent chem station has drawn integration marks for the P, so it's integrated here, through here, and this area is then reported.

But if I was going to go in there manually, and I would never do a manual integration, because if I do a manual integration, it's biased in a way, because I can't treat every one of my chromatograms the same. So I would always defer to an automatic calibration, as was done here. But if the dynamics of this peak were different, the line could be drawn from here to here. We might be

missing this. We just don't know.

In this case, also, we have an integration time on top of the peak. So, I can't actually see the peak shape, and peak shape is very important when you're evaluating chromatography.

Q. Why is that?

A. Because your quantitations, those numbers, those values you get from this peak, be it either the height or the area, are dependent upon the quality of that peak, and this is very poor. This is better. I'm a little concerned about this co-eluting peak and the start and stop of this integration.

Q. Given the issues you've just described, do you have any confidence that this chromatogram has accurately identified the epitestosterone?

A. Absolutely not. I'm not convinced that this is epitestosterone. This peak could be. That peak could be, or certainly this peak may be. But there's a co-eluting peak within that peak.

Now, maybe one would say that this somehow benefits Mr. Landis, because the peak is

bigger. I don't care. The peak is wrong. The chromatography is bad. This test should never have been accepted by the laboratory.

Q. You don't think the laboratory should just say, Well, it's bad, but it's bad in Mr. Landis' favor, so we'll use it anyway? Is that what you're saying?

A. We have to operate our laboratories to the best possible way that we can, and we know -- we looked at the Montreal data earlier today -- we know this can be done. So this is a very poor representation of epitestosterone and testosterone.

Q. You understand on the B Sample they ran three replicates of the sample, right?

A. They did, yes.

Q. Let's take a look at the next chromatogram of those three replicates. I believe it's USADA 280.

Again, we have a single ion, correct?

A. We have a single ion.

Are you sure this isn't the same one? It looks the same.

Q. It's not.

A. Okay.

Q. Do you see any issues as far as the chromatography here?

A. The epitestosterone peak looks the same, and the testosterone peak -- we still have problems with the end of the integration. It's not -- baseline was off.

THE REPORTER: The end of the integration what?

A. It's not baselined drawn.

Q. Based on your review of this chromatogram, do you have any confidence that the laboratory has properly identified epitestosterone?

A. No.

Q. How about testosterone?

A. I don't know. I'd like to see those other two ions.

Now, as I mentioned before, that one

might say that if this peak is bigger, then that alters the ratio in the favor of Mr. Landis. But, do we really know that this peak is not interfered with either? Should this peak be bigger than it should be, or is it smaller than it should be, without the ions present -- the

three ions present, we would never know.

Q. Were there other substances that would share the 432 ion?

A. Yes. Before I came here, I simply searched one of the mass spectro libraries that I had in my office, and I just asked the computer to feed me those compounds that have an ion 432 that are in the abundance of 90 to 100, and I came back with over ten compounds that have a 432 ion in their mass spectro, and some of these were steroid-related compounds, and some were not. That was only one library, and I only asked for compounds where the 432 was between 90 and 100 percent abundant, but I'm sure many more if I had altered that parametric retrieval program.

Q. And that's why you have to look at more than a single ion for identification, right?

A. Yes. We -- at this point, we have no idea what's beneath this peak, whether this is pure testosterone or testosterone plus some unknown compound.

Q. Let's go on to the next of the three replicates, which is at USADA 282.

Again, we have the single ion, correct?

A. That's correct.

Q. Do you see any issues with the chromatography here?

A. It looks just like the last one. Again, we have problems with the epitestosterone and the testosterone in the way it's been integrated.

Q. Based on your review of this chromatogram, do you believe that it has adequately identified the epitestosterone and testosterone peaks?

A. No, I'm not satisfied with that.

Q. What is the significance of the fact that LNDD did not provide the chromatograms showing the analysis of the three diagnostic ions that we just discussed?

A. Well, simply, their T/E ratios are not supported by the chemistry that they conducted in their laboratory. It's unreliable.

Q. Thanks. You can have a seat.

I guess it would be fair to say, if you haven't adequately identified testosterone and epitestosterone, you can't really go forward with your analysis from there. Would you agree with that?

A. That's correct. In the field of toxicology, particularly forensic toxicology, where cases obviously do end up in litigation or arbitration, that we have to conduct our work to the utmost possibility that it's defensible. And I teach this to my students and my staff is that what we do has to meet the standard of care, almost like practicing medicine, when we talk about what you need to do with a sick patient, whether it's standard of care in toxicology. And when you do SIM work, that involves a minimum of three ions for your drug or your analyte of interest.

I know no lab that's reporting quantitations on a single ion, and that's identification and quantitation on a single ion in a setting like this.

Q. Have you seen that other WADA labs provide different types of documentation?

A. Yes, I have.

Q. Describe what you've seen.

A. From UCLA, I've seen a chromatogram that demonstrates the selected ion monitoring data, and on the page is full-scan data. So we have the best of two worlds: We have the ability to look at the full-scan fingerprint data of epitestosterone and testosterone. In addition, we have the ability to look at the SIM data and the qualifications of those ions.

Q. If you go to GDC Bates-labeled 524, is this the UCLA chromatogram that you have just referred to?

A. Yes, so this provides us with selected ions for the internal standard.

I'm having a little trouble reading it, but it looks like the internal standard's on the top and --

Q. We can get it in front of you. There's a GDC book somewhere.

MR. CAMPBELL: 524.

A. Perfect.

Upper left-hand side is the internal standard, ethylmorphine, I believe.

Q. That's right here?

A. Yeah. That is a single ion. I prefer to have two ions for ethylmorphine, to be honest with you. That's my way of practicing, because I have two ions for the internal

standard, minimum. That way you can verify there's no interference with your internal standard. The testosterone is in the panel immediately beneath it, and it shows 432, 433 and 209.

It's interesting here that it's 432 and 433, and on the LNDD documents, it seems that 432 and 433 were being acquired, say, jointly.

Q. Why is that significant?

A. Well, I really can't tell you what the impact would be, because I haven't studied it. But we know that the full scan of derivatized testosterone has a 432, which is a prominent ion, and a 433 next to it. And with the UCLA document, the 432 and the 433 -- I'm sorry -- the 432 and the 433, let's see. Were they acquired separately? Yeah. 431.7 to 432.7, and then 432.7 to 433.7, so those two ions were acquired separate; whereas, with LNDD, it seems to me that we have 432 and 433 acquired together. I have no idea what that will do.

Q. And then they show all three peaks on the same chromatogram, right?

A. That's right. And in my laboratory,

I would evaluate the abundance of the two smaller ions -- that would be the 432 and the 208 -- to the tall ion, which is the 432.

Q. Have you co-authored any papers that discuss the importance of this type of acquisition of rediagnostic ions?

A. Well, yes. The first is -- and, actually, kind of historically in the field, for years we were struggling with the use of selected ion monitoring in toxicology. Was that enough scientific support for the identification of a drug, an illicit drug, in someone's blood or urine?

And much of this selected ion monitoring, where the initial work was done by the military drug-testing labs back in the '70s and the '80s, and then adopted by the doping labs and labs like mine -- but in the 1990s and -- we were struggling with the use of our selected ion monitoring. We were all very comfortable with it, but there were no documents that supported it kind of in a standard or guideline. So one of the first that was published was the one that was published from the committee that Dr. Bowers has chaired.

Q. I'm going to go ahead and introduce that document as an exhibit. It's entitled, Gas Chromatography Mass Spectrometry Confirmation of Drugs Approved Guidelines, and it's been marked as GDC 1358.1.

(GDC Exhibit 1358.1 was marked for identification.)

Q. And this paper specifically

addresses the issue of analysis of the three diagnostic ions?

A. Yes.

Q. On which page?

A. If you go to Page 22, Section 8.2.3, this section describes selected ion monitoring acquisition and its use in toxicology. I'd also written a paper that describes this approach, somewhat similarly, and it was published in Forensic Science Review. I was looking to see if it was cited in this document, but it was not. But it was published in Forensic Science Review. Let's see if I can find it quickly.

Q. When you hire new people at your laboratory, what type of training do you provide them on how to operate this equipment?

A. Well, we -- it takes months, or even

a year or two, to train them to the level where they're competent to do everything in my laboratory. In my laboratory, it's a relatively small operation. I have four or five people that work on the bench, and a Ph.D., a manager, and myself. But we teach them everything, and everyone's cross-trained in every area of the laboratory from specimen receipt to, of course, specimen discard, but everything in between, including the operation of the gas chromatograph and the gas chromatographs mass spectrometers.

And one thing they understand is chromatography.

And the chromatograms from my laboratory are classic gaussian-shaped curves with all of my drug assays. And if they're not, I send them back, and I would not approve the batch and would not report results on that batch.

Q. Do new employees at your lab -- do they all go through a standardized training process?

A. I would say it's standardized to some extent. We do throw them into the laboratory quite early after a brief orientation. Much of the work that we do in the

laboratory is somewhat like cookbook toxicology, because when we extract cocaine, it's much like extracting morphine or heroin, so the actual extraction is very similar from assay to assay.

And then once you learn how to perform the maintenance on a gas chromatograph or the gas chromatograph mass spectrometer, you're good for all the tests. But again, it takes a good amount of time to get them to the level of proficiency that we're happy with.

Q. Do you do continuing training with your employees as they stay there and get more experience?

A. We do continuing education with all

of our employees. We have meetings, sometimes weekly, sometimes monthly, with our employees to bring them up on the current state of what we're doing in the laboratory and introduce topics to them.

My employees go to professional meetings or conferences every year.

Q. What's the reason that you have them do that training, the ongoing training?

A. Well, otherwise their knowledge of the field becomes stagnant. Even to maintain my

diplomate status with the American Board of Forensic Toxicology, I'm required to go through a certain amount of continuing education, just like you are required, I think, by the California Bar. It's a required -- it's required for your license; it's required for your job.

Q. Let me move on to a different subject, and that's matrix interference. Can you describe to us what matrix interference is?

A. Those chromatograms you saw on the previous pages, that's matrix interference. That's a great example of what you get when the matrix is interfered with. Now, we don't know where that comes from.

Q. So we could put up any of those pages, 277, 280, 282, it doesn't matter. Any of them will give you an illustration, right?

A. That one right there.

Q. Okay. So what are the possible causes of matrix interference?

A. It could be other steroids present in that sample. It could be one of those compounds I picked up on the library. Just compounds I don't know. And that's what worries

me.

Now, even when I do a simple test like a cocaine confirmation, there are times where we come across matrix interferences, and we have to refer the sample out to another laboratory that has an assay that doesn't have those matrix interferences. It could be something that's in the urine sample that's secreted endogenously, or it could be another drug or drug metabolite.

Q. What is the impact of matrix interference on identification of compounds?

A. The identification is faulty, and it could result in a quantitation that's also inaccurate.

Q. So the matrix interference can affect both identification and quantification?

A. Yes.

Q. Let's take a look at some of the other chromatograms. If you go back to Exhibit

24, let's take a look at USADA 100.

This is a control urine on the A Sample, and let's go to the epitestosterone/testosterone chromatogram. And looking at the peak at 19.33, any issues you see

with that chromatogram?

A. I ask myself what's going on there, because there's a shoulder on the right side.

Q. That's this part down here?

A. Yeah.

So drawn in -- or you've drawn a not-so-straight line down that center of the peak. We may have two peaks that are co-eluting or the injection port is not conditioned properly or the column in the gas chromatogram is dirty, short. But it's not doing the separation that it was designed to do.

Q. What would be the effect of a co-eluting peak like this in a control?

A. The quantitation would be wrong.

Q. Let's take a look at USADA 93.

This is the athlete's sample. Let's take a look at the internal standard, methyltestosterone chromatogram.

Do you see any issues with the peaks on this chromatogram?

A. Well, they have a resolution problem. It's fairly apparent that there's a co-eluting peak at 2121 that is co-eluting with the internal standard at 20.98.

Q. What is the significance of that?

A. It's not baseline resolved.

Technically, I think even in the NCCLS document, we allow that valley down to about 10 percent. So that valley looks like it's about 20 percent, so that's not adequately separated.

There are times when you're doing complicated analyses that you can't separate two peaks down to the baseline, so we allow, say, up to about 10 percent where you have that overlap. In this case, it's, like I said, probably close to 20 percent.

Q. And if you look at the previous page --

You can leave this one up on the screen.

But USADA 92 tells you that -- actually, you can put them both up -- that the retention time for the internal standard is -- yeah, it's the 20.98, correct?

A. Yes.

Q. In your opinion, what is the impact of this matrix interference within an internal standard?

A. Well, the target response value on that table on the bottom right-hand side would be incorrect so that, ultimately, the quantitating, the epi and the testosterone quantitations further to the right would not be correct.

That's assuming that -- well, I mean, that's correct, that the integration's not proper. But we can only guess at where the methyltestosterone peaks start and end. The computer's done an estimate for us, so we have to rely on the computer in this case.

Q. Okay. Let's take a look at another A confirmation document. It's USADA 213.

Again, focusing on the internal standard, the methyltestosterone chromatogram, and looking at the peak at 21.13, which is identified at USADA 212 as the peak for the internal standard methyltestosterone, do you see any problems with that peak?

A. That's a chromatographic problem we typically see in my laboratory, when the injection port is not properly conditioned or it's dirty or the gas chromatograph column is not satisfactorily resolving the peaks on the

chromatogram. It doesn't look like overload.

That is, it doesn't look like the laboratory injected too much onto the column. This is something different. If the laboratory injected too much onto the column, there would be a shoulder on the right side, not the left.

Q. What would be the effect of this overload problem in an internal standard in relation to the sample?

A. With a leading edge or a tailing edge on the chromatogram, either on the front or back, can result in quantitations that are wrong.

Q. Let's take a look at a few other chromatograms.

If you can put up both USADA 93 as well as LNDD 34.

If you take a look at these two pages, you can see that LNDD 34, as it's been represented, is a blown-up chromatogram of what is seen on USADA 93. Let's look at the epitestosterone peak.

Do you see any issues in that chromatogram?

A. The problem here is we don't know

where the integration started and stopped. In my laboratory we do the same, where oftentimes we go to the chromatogram and blow it up so we can take a look at it to see if it's resolved and see its relationship to the baseline.

In this case, we can see that it's not resolved, and we have a wavering baseline on the left side so, although this is blown up, it demonstrates that there's a chromatographic problem with the epitestosterone peak. I'd like to see where the integration started and stopped.

Q. What is the effect of that chromatography issue on the reliability of the identification of epitestosterone here?

A. The quantification would be unreliable.

Q. The quantification would be --

A. Yes. That's assuming it's epitestosterone, of course, because it's a single ion.

Q. All right. Let's take a look at another pair of chromatograms. It will be USADA 277, which is from the B confirmation, and then LNDD 27, which is a blowup of the B confirmation

chromatogram shown on USADA 277.

Again, looking at the epitestosterone peak, any issues with the chromatography there?

A. The same as I've stated before. Same problems. Except it's worse.

Q. How is it worse?

A. The leading baseline on the left side of the epitestosterone peak is higher in this case, so I'm very uncertain on how the baseline was drawn for this peak.

Q. Now, let's replace LNDD 27 with LNDD 28. This is just blown up more. Does that help you at all in resolving the chromatography issues?

A. Of course not. No. I could imagine a number of ways to draw that peak and, most importantly is I don't know how the software drew the peak.

Q. And the problem you're seeing here is there's multiple peaks merging together; is that an accurate characterization?

A. Yes. You could imagine that the leading edge of that epi peak could lead down to the baseline, and that may be how it was drawn;

or the baseline could be drawn starting where all that wavering baseline begins, so I just don't know.

Q. Let me ask you to do this: If you can demonstrate it on the screen, what else could be coming into here, it might help to illustrate the point.

A. In a perfect world, it would be drawn down like this, and that's not the best, just think that -- it's kind of closer to the epi peak.

But it could be drawn like this; it could be drawn like this; so when we look at the way the area was calculated by the chem station software, it could be all this, it could include this, or it could include all this. And I just don't know, because the data's not presented.

Q. That looks like a mess.

Let's look at the next pair of chromatograms. Again, the B confirmation was done in triplicate, so we'll have to look at all of them. Let's put up USADA 280 on the left and LNDD 29 on the right, LNDD 29 being a blowup of the peak shown in USADA 280.

Again, any problems with the

epitestosterone peak here?

A. It's essentially the same. Now, if you would blow up the left panel, epitestosterone/ testosterone panel, you'll see what I'm talking about. You can see how those vertical lines are drawn next to the -- or on both sides of the peak, the 1857 peak. So you can see how it was drawn in this case, because it's not obliterated by the integration.

I don't know if that's correct or not. I'd like to see the other ions. Because with the other ions, we could differentiate a co-eluting peak from real epitestosterone.

Q. Let's put up LNDD 30, which I think is just another closer-up blowup of the same chromatogram. Does that have any resolving power for you?

A. Very poor. This is, I think, the worst of the three.

Q. Why is that?

A. There's many, perhaps two or three co-eluting peaks before the epi peak.

Q. Let's do this: I want to go through the same demonstration, but let's zoom in, and let's bring it basically -- zoom in on that.

And then you can come around again and illustrate what you're talking about.

A. Since we don't those other ions demonstrated here, we're not really sure where the epi peak starts and ends, and it could be here; it could be here. This is probably a co-eluting peak and not part of the epi.

But depending on the quality of the chromatography that's possible with the liner that's installed, and also the column that's installed, this could be -- this could be epi. And then, where do we draw the baseline? We kind of draw it all the way down here, or maybe if it's lower, because the baseline doesn't really return to zero.

Q. Thank you.

All right. One last set of chromatograms. Let's put up USADA 282, which is the third replicate on the B confirmation, and then, on the right-hand side, LNDD 31, which is a blowup of USADA 282.

And again, looking at the epitestosterone peak, any problems with this chromatography?

A. This has the same problem, but it

seems like the baseline is wavering more before and after the epi peak than in the other two chromatograms, so I would be very uncertain on where to draw that baseline.

Q. And what is the significance of that?

A. Well, depending on where you draw the baseline and where the tick marks are for the integration would control the amount of area that's integrated and then computed in the concentration calculation.

Q. Let's look at a closer-up chromatogram of this same peak at LNDD 32.

Does that help at all, or does it just make things worse?

A. Unfortunately, it makes it worse.

Q. How so?

A. I'm not certain where the baseline is.

On this chromatogram, if you go back to the previous shot, you can see that the baseline of this chromatogram --

Q. Are you talking about on the blowup of the LNDD 31?

A. That's right.

Q. Okay.

A. The baseline's very noisy. The signal to noise there is, I think, too much, too high, and would affect the laboratory's ability to evaluate the epitestosterone in an active fashion.

Because when you look at the epi peak, it's only about three times noise which means, technically, that this peak is down near the laboratory's limit of detection, which would surprise me.

Q. Why's that?

A. Well, using -- well, we've looked at the data from UCLA, and we've looked at the data from Montreal. We know that epitestosterone and testosterone could be chromatographed properly. And in this setting, under these conditions, it's obvious that there's a problem.

Q. What is the effect of all this poor chromatography that we've been looking at for the last bit of time on the reliability of the T/E ratio results in this case?

A. I don't think we can rely on the T/E ratios. I mean, your question's why this specimen was sent on to IRMS, because, see, the

stopgap technique here is the screen. And there were problems with the initial screen also. So you look at the screen, and then you look at these confirmation tests. These are the tests that point you into the direction of the IRMS. And that's the purpose of using a screen followed by confirmation. So you wonder why you moved over that way.

Q. Just to be clear, you're not offering any opinions on the IRMS portion of the case, are you?

A. Absolutely not. Just, I understand that it's the confirmation technique.

Q. Let's put USADA 57 and USADA 58 up on the screen.

MR. BRUNET: Mr. Jacobs, it's -- we're a few minutes after 5:00. You said that was the last chromatogram, but now you're getting into something else. Would you rather suspend until tomorrow morning?

MR. JACOBS: Well, the problem is, he has to leave tonight.

MR. BRUNET: Oh.

THE WITNESS: I'm sorry.

MR. BRUNET: All right. I guess --

MR. JACOBS: I'll try to --

MR. BRUNET: I guess we'll sit here and listen.

MR. JACOBS: I'll try to move along.

Q. (By Mr. Jacobs) Now, you reviewed these two pages in the document package, right?

A. Yes.

Q. And it's been represented that what this is is a reinjection using the confirmation extraction procedure into the screening instrumental procedure.

Do you see that?

A. Yes.

Q. And on the confirmation extraction procedure, you understand LNDD adds only one internal standard, which is methyltestosterone, correct?

A. That's correct.

Q. Whereas, on the screen, they add three internal standards: Methyltestosterone, androsterone D-4 glucuronide and salbutamol. Right?

A. That's correct.

Q. But on here, the only one that they injected was the methyltestosterone, correct?

A. That's correct.

Q. But you can see that they're reporting andro D-4 glucuronide retention time 12.38 with a target response of 104,700-something, and so there's a matching chromatogram, right?

A. Yes.

Q. Does this cause you concern?

A. Well, this is the funny thing. When you don't acquire multiple ions for your compounds of interest, the software is not smart enough to differentiate noise from drug or internal standard. So essentially, it did what it was instructed to do, was look for a peak in that window, which it did, and found, but we know it's not real.

Q. So this is actually a perfect illustration of the importance of acquiring three diagnostic ions; is that right?

A. Absolutely.

Q. Now, given all of the demonstrated problems that we've been talking about, the problems with identification of testosterone, with the required number of ions, problems with matrix interference, problems related to

identification of internal standards, do you have any confidence at all in the accuracy of the GC/MS testing for testosterone?

A. None at all.

Q. Do you have any confidence in the GC/MS testing for epitestosterone?

A. None at all.

Q. Let me ask you this: In all of your years, 20-plus years, in this field doing GC/MS testing on drugs, have you ever seen so many errors on a single sample?

A. No.

MR. JACOBS: Thank you. I have no further questions.

MR. BRUNET: Thank you, Mr. Jacobs.

We'll be in cross-examination right away.

MR. YOUNG: Okay.

EXAMINATION

BY MR. YOUNG:

Q. Dr. Goldberger, I think you're lucky given the hour, because I'm going to resist the temptation to start pulling out the chromatograms that I might have otherwise asked

you about.

But let me start with a question on your curriculum vitae, some 30 pages long, and I read through it pretty carefully, and I think I only saw the word "steroids" mentioned once in there. Would I be missing something?

A. No, you're not.

Q. Of the 3,000 samples that your lab does a year, how many of those are urine samples?

A. Well, these are 3,000 cases. Each one of those cases typically contains a urine sample; not all, but the majority would, so 27- -- or 2700 to 2800 urine samples.

Q. And out of those 2700 urine samples, how many of those did you analyze for testosterone and epitestosterone?

A. Very few. And if we do, we send them out to a reference lab, so very, very few.

Q. So you don't do that. You send them to somebody else?

A. That is correct.

Q. You referred to your cocaine testing as "cookbook toxicology"?

A. The extraction. Any extraction,

these days. We can describe "cookbook" -- we have an SOP, standard operating procedure, manual that details the process in extracting the drugs. It's very simple.

Q. Storing extractions is very different than the extraction for cocaine and the other -- there's five drugs of abuse, right?

A. Well, in my laboratory, we don't

only test for cocaine, but we test for many other drugs. Some are very difficult drugs to detect because there are trace concentrations in the blood. I would agree testosterone and epitestosterone and other steroids are challenging, but there are many labs across the world that do that test, and we've seen great examples from the UCLA lab and the Montreal lab.

Q. What accreditations does your laboratory have?

A. We're accredited by the college of American Colleges.

Q. That's it?

A. We are licensed by the state by default, because we're accredited by the college of American Colleges.

THE REPORTER: Could you give me the

acronym please for the state of --

THE WITNESS: By default.

Q. And what was your position with the Society of Forensic Toxicologists?

A. I'm on the Board of Directors. I have been on the Board for years. I happen to be their webmaster. A hobby of mine is programming on the Web, so I've been a webmaster for software for over ten years.

Q. When you go -- when you have a cocaine case, you said that most of your testimony involves drugs of abuse?

A. And therapeutic drugs and over-the-counter drugs.

Q. Okay. When you have a cocaine case or an alcohol case, do you provide a documentation package to the state?

A. We provide a documentation to whomever requests. The state typically doesn't request it. It would be the defense that requests it. We call it a litigation package.

Q. How many pages would you have in your typical litigation package?

A. I've had cases where it tested positive for alcohol alone, and it would be

about 30 pages. We provide copies of all of the controls, all of the calibrators, all of the chain-of-custody forms, the report, of course, and I've had document packages that have exceeded 4- and 500 pages when the case contains multiple drugs.

Q. Have you ever had an occasion in any of your cases where you've turned over the electronic data files on your GC/MS instrument to the other side?

A. No one has ever asked, but if someone asked for an electronic data file dating back ten years, I could give it to them.

Q. But it's never happened?

A. No.

Q. What -- Okay. So you don't analyze samples for testosterone and epitestosterone.

Before this case, how many times have you personally reviewed documentation packages reporting testosterone or epitestosterone?

A. Once or twice.

The funny thing, though, is just a week or two ago, I received an inquiry from Dr. Braun, who's the chairman at the pathology

department at UCLA, and he writes to me --

Q. Excuse me. Is this responsive to my question when I asked how many times? Once or twice?

MR. SUH: I'm sorry. This witness is entitled to answer just as when we were cross-examining their witness and they were entitled to answer.

MR. BARNETT: And for the record, our witnesses didn't bring prepared notes to read from.

MR. JACOBS: It's not notes. You can ask to see it, if you want.

THE WITNESS: Yeah. Here.

MR. BARNETT: Were you instructed by counsel to bring that today, sir?

THE WITNESS: Absolutely not.

MR. YOUNG: Okay. Let's ...

Mr. Chair.

THE WITNESS: It's brief.

MR. BRUNET: Please finish your answer.

A. Dr. Braun writes to me: "In view of your training and considerable experience, I believe you may be interested in the following

job opportunity. The department of pathology and laboratory medicine of the David Geffen's School of Medicine at UCLA is seeking a director for the Olympic analytical laboratory."

So he asked me to apply for that job despite, as you said, never running a T/E in my life.

Q. Okay. You said, I think, and correct me if I'm wrong, but in looking at these chromatograms, the testosterone peak and epitestosterone peak can look -- can be similar? Does that mean you could confuse them?

A. Well, I would say in a doping case, you probably wouldn't confuse it, because the epi peak is much smaller than a testosterone peak. That's, it's a screen for the administration or use of exogenous testosterone.

Q. Well, in a normal person, you wouldn't confuse those peaks either, would you?

A. Well, it depends on how you run the

test.

Q. Well, they come out entirely -- testosterone and epitestosterone come out in entirely different retention times. Am I missing something?

A. I would agree.

Q. And this is USADA 277. When Mr. Jacobs was asking you about this chromatogram, you said -- well, why can't this -- I'll wait until you find it if you would like.

A. I'm okay.

Q. You said, Well, how do we know that this peak at 19.62 retention time isn't testosterone? Did I understand that right?

A. According to the quantitative report in that batch, the testosterone elutes at 19.3 minutes, which is, I think -- that's the difference. It's the one to the left.

Q. And that's right. So, if I took you through the various standards for testosterone, the positive controls, you would see that they elute at 19.30, 19.31, 19.30, right?

A. That's correct. That's how you set your calibration table and your retention times. I didn't see any quality control, though, so ...

I'm not sure if I'm missing that part, but there was no quality control in this package from LNDD.

Q. The fact that there are three

calibrators that you use for testosterone all come out at the same retention time tells you that's the retention time for testosterone, right?

A. That's a good thing, yes.

Q. And so, you shouldn't be confused that this peak at 19.62 might be testosterone, should you?

A. Not necessarily, no.

Q. You've said that you're certified -- your laboratory is accredited by the College of American Pathologists, right?

A. That's correct.

Q. You've never been accredited by ISO, the International Standards Organization.

A. I have not.

Q. Or the World Anti-Doping Agency?

A. No reason to. There may be a reason in the future for ISO, because those ISO guidelines are becoming more applicable to forensic toxicology. It's still a few years away.

Q. And is that because they are of a higher standard?

A. I'm not sure I'd say that just yet.

Q. They're a more universally accepted standard?

A. Maybe.

Q. Mm-hm. And the ISO rules for anti-doping laboratories are what's set forth in WADA's International Standards for Laboratories; wouldn't you agree with that?

A. It is. It makes reference to ISO.

Q. But you've never -- that's not any set of rules you've ever had to work under in your life?

A. No. I work with standard practice at this point. I'm not under ISO's guidelines or under WADA's guidelines or USADA's guidelines.

Q. And -- okay. You've talked about two specific documents in the documentation package. I'll ask you to look at them. It's USADA 200. That's the document where you pointed out the number of nonforensic corrections.

Do you recognize that?

A. Yes, that's correct.

Q. This document deals with testosterone and epitestosterone only, correct?

A. It does.

Q. And then you talked about a document at USADA 0008, and you pointed to the fact that the Number 995475 was a wrong number. It should have been 474.

A. Yes.

Q. And the description there says that there was a problem with inhibition of derivatization, right?

A. I can't read French, but I think that's what it says.

Q. Right. And you know that's what happened to the A Sample screen for Mr. Landis' Stage 17 Sample, don't you?

A. That's correct.

Q. And so you weren't confused about whether this was the wrong sample. You knew this was his sample.

A. Well, maybe not. Maybe it was the wrong sample that failed and was repeated, but how do you know that it is the right one, or how do you know that it's the wrong one or you're confused?

Q. Well, take a look at Page 000 -- excuse me -- 0054, and you know that's the

computer printout of his sample, and you know that's the right number.

A. That it is, yes.

Q. So any confusion you may have has

nothing to do with the documents that are generated by the instrument; it's the way a number was written on this summary form, right?

A. Yeah. This was just an example. It's a symptom of a problem. It's like high blood pressure. You know, it's a symptom of, perhaps, cardiovascular disease. It's just a symptom of, perhaps, a more serious problem.

Q. Jenny, can I have that big stack of stuff?

I'm not going to spend a lot of time with this, because I think you would agree that the applicable rules that apply to a WADA laboratory are the International Standards for Laboratories and the other technical documents issued by that; is that right?

A. That's correct.

Q. But I will show you -- may I approach the witness and the bench and everybody?

MR. BRUNET: Please do.

Mr. Young, is this an exhibit?

MR. YOUNG: Yeah, we probably ought to -- what's our next number, Jenny?

MS. SLOAN: We're at Exhibit 116.

MR. BRUNET: Is that 1-1-6?

MS. SLOAN: That's correct.

MR. BRUNET: Thank you.

(USADA Exhibit 116 was marked.)

Q. (By Mr. Young) Now, these are the 2006 forensic toxicology laboratory guidelines of SOFT. And what is SOFT again?

A. Society of Forensic Toxicologists.

Q. That's the organization you're on the board of?

A. Yes.

Q. Right.

A. And I'm president of the AFS.

Q. Okay.

Take a look at Page 8.

The chain-of-custody requirements in this document are found in Section 7.2; is that right?

A. Yes.

Q. And all 7.2.5 says is that any transfer of specimens must be documented as part

of the permanent laboratory record.

A. I agree.

Q. Okay.

We go on to the next page, and 7.2.6 has to do with chain of custody for bottles, is that correct?

A. Well, it could be in a tube. My specimens come in tubes, not bottles.

Q. Okay. That's fine. The sample as opposed to aliquots of the sample. Because

7.2.7 talks about aliquots.

A. Right. But you're still talking about aliquoting from a bottle.

Q. Right. From a bottle or a tube.

A. But, more importantly, you're aliquoting from the specimen, so when you touch a specimen and remove A Sample of it, it's documented.

Q. Well, we have two different things.

Don't we? Don't we have bottle chains of custody and aliquot chains of custody? Am I missing something?

A. It depends on the setting. And the laboratory.

I have -- when I receive a case in

my laboratory, I have what's called an external chain of custody. There's an external chain of custody with Mr. Landis' sample. So that when it's collected, it's started, it comes to the laboratory and signed. Once it's in the laboratory --

Q. And stop a second. We have a --

MR. SUH: Oh, I'm sorry. Go ahead and let him finish his answer. You cut him off.

MR. YOUNG: All right. That's fine.

MR. SUH: Let him finish.

A. Once it's in the laboratory, and then we have the choice of having an aliquot chain of custody or we could have a batch chain of custody or a bottle chain of custody. You could have one of three or a combination of those three.

Q. (By Mr. Young) Okay. Take a look at 7.2.6. It says that: "It's recommended --

A. Yes.

Q. -- that chain-of-custody documentation reflect not only the receipt of the specimen from an outside source" -- which is what you were talking -- and I really didn't mean to cut you off. It was the first part of

what you were talking about.

A. Correct.

Q. Okay -- "but, also," that the specimen or an aliquot -- "but also transfers in the specimen or aliquot within the laboratory."

A. That's correct.

Q. And that's the requirement. That's under the document that your group has written. That's the recommendation -- it is a recommendation that you document those transfers.

A. Keep in mind the purpose of this is a guideline, and it's not a standard, and it's not meant for punitive action. It's not the basis for an inspection. So if I inspected a laboratory, I don't use these guidelines to inspect the laboratory.

Q. And the standard that's used to inspect the Paris laboratory, or any other laboratory within the WADA system, is the International Standard for Laboratories and the other technical documents.

A. For those issues, yes.

MR. YOUNG: I have no further questions.

MR. BRUNET: Thank you, Mr. Young.

MR. JACOBS: Brief, brief, brief follow-up.

MR. BRUNET: Yes.

EXAMINATION

BY MR. JACOBS:

Q. The laboratory document errors that you were talking about earlier, if I understood what you were saying, it was that those types of errors are symptomatic of sloppy work. Did I understand that correctly?

A. Yes.

Q. And you saw that type of sloppiness throughout the laboratory document package, right?

A. Yes.

Q. You can put USADA 277 back up on the board, just for a second.

On the epitestosterone/testosterone peak, you were never suggesting that this peak could be confused with this peak, were you?

A. No.

Q. You were saying that the peak here that they say is epitestosterone might be

confused with this peak or this peak or anything in this whole area, right? Did I understand that correctly?

A. That's correct.

Q. Your testimony about the poor chromatography and the matrix interference issues, that goes to the accuracy of the results, right?

A. Absolutely.

Q. Is accuracy affected by whether you're accredited by WADA or ISO or the agency that accredits you?

A. No, because you build on the standard of practice.

Q. Accuracy is accuracy, right?

A. That's right.

MR. JACOBS: Thank you. Nothing further.

MR. YOUNG: No additional questions.

MR. BRUNET: Well, that's good news. 5:30.

Suspended until tomorrow morning,

9:30.

Could we have a list of witnesses, please, before we leave?

MR. BARNETT: Could we have two-minutes to confer?

MR. BRUNET: Yes.

MR. BARNETT: One minute?

(Recessed at 5:32 p.m.)

BEFORE THE AMERICAN ARBITRATION ASSOCIATION

North American Court Of Arbitration For Sport Panel

TRANSCRIPT OF PROCEEDINGS, May 19,2007

UNITED STATES ANTI-DOPING AGENCY,

Claimant,

vs.

FLOYD LANDIS,

Respondent.

PURSUANT TO NOTICE, the above arbitration hearing was held at Pepperdine University, Department of Law, Malibu, California, May 19, 2007, commencing at 10:20 a.m. before Debra K. Resling, RMR, Certified Realtime Reporter and Notary Public.

AMERICAN ARBITRATION ASSOCIATION PANEL

MR. PATRICE BRUNET, 1010 De la Gauchetiere West, #2260, Montreal, Quebec H3B 2N2, Canada. E-Mail: Pbrunet@brunetavocats.com.

MR. RICHARD H. MC LAREN, Innovative Dispute Resolutions, Ltd., c/o McKenzie Lake Lawyers, LLP, 300 Dundas Street, London, Ontario N6B 1T6, Canada. E-mail: Mclaren@mckenzielake.com.

MR. CHRISTOPHER L. CAMPBELL, Chapman & Intrieri, 2236 Mariner Square Drive, Suite 300, Alameda, CA 94501, United States. E-mail: Ccampbell@chapmanandintrieri.com.

APPEARANCES

MR. RICHARD R. YOUNG, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MR. DANIEL J. DUNN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 1700 Lincoln Street, Suite 4100, Denver, Colorado 80203-4541, (303)866-0365, appeared on behalf of the United States Anti-Doping Agency.

MR. MATTHEW S. BARNETT, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MS. JENNIFER SLOAN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MR. MAURICE M. SUH, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333 South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. DANIEL L. WEISS, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333 South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. HOWARD L. JACOBS, Attorney at Law, from the Law Offices of Howard L. Jacobs, 4210 Lewis Road, Suite 5, Agoura Hills, California 91301, (818)442-0408, appeared on behalf of Floyd Landis.

MR. PAUL SCOTT, Chief Operating Officer, 2160 Century Park East, #2108, (310)203-0354, Los Angeles, California 90067, Agency for Cycling Ethics.

Participants behind Counsel Table: Caroline Hatton, Larry Bowers, James Padilla; Floyd Landis, Amber Landis, Mr. and Mrs. Paul Landis, Arnie Baker, Michael Henson, Brent Kay, Todd Thompson.

Panel Participants: Dr. Francesco Botré, Rosalie Brunel.

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(Commencing Saturday, May 19, 2007 at 10:20 a.m.)

MR. BRUNET: Good morning, everyone. This is Day 6 of the USADA and Floyd Landis arbitration.

Could we have appearances, please?

MR. SUH: Yes, good morning, Mr. Chair.

Maurice Suh, from Gibson Dunn and Crutcher, appearing on behalf of Floyd Landis, who is present with us here at counsel table. And also here at counsel table, Howard Jacobs, Dan Weiss and Paul Scott. Good morning.

MR. YOUNG: Good morning. Richard Young, Holme Roberts and Owen. With me are Matt Barnett, Dan Dunn and Jennifer Sloan.

MR. BRUNET: Thank you.

As is now the routine in the morning, I will update the parties on the record with the amount of time remaining. The parties have received last night an adjustment based on the agreement to open today as a hearing day, and the remaining balance for Mr. Landis is 10 hours, and the remaining balance for USADA is 15.1 hours.

There's also been a request from the media to have access to our calculation, our daily sheets, and the parties have agreed to provide the media with that sheet, so that's been done.

MR. WEISS: Mr. Chair, Dr. Schänzer will be testifying this morning, and we'd like to renew our motion to strike as to any discussion of the Cologne positivity criteria. As discussed in our -- or as requested for in our second request for documents, C3, we have requested all documents related to any other WADA laboratory as to their positivity criteria. Those documents were not provided, and as per Procedural Rule Number 2, Paragraph 5, that testimony should be stricken.

MR. BRUNET: Mr. Weiss, for clarification, the motion you're just articulating right now, is this -- are you referring to the current written motions that the Panel is currently considering --

MR. WEISS: Yes, I am.

MR. BRUNET: -- or are you articulating a new motion which is verbal in nature at the present time?

MR. WEISS: No, this was back to our pretrial motions to exclude all testimony related --

MR. BRUNET: I'm referring to the motion to strike -- the motion to strike that you have just formulated a few moments ago?

MR. WEISS: Yes.

MR. BRUNET: Is this a new motion, or are you referring to the current motion that is currently under review by the Panel?

MR. WEISS: It is a current motion currently under review by the Panel. We just wanted to renew our objection.

MR. CAMPBELL: Can I get some

clarification? It seems to me that potentially with respect to the Cologne lab, two issues. One would be with respect to that, it wasn't a completed study; and the other one you're saying that you weren't provided the data.

MR. WEISS: Correct.

MR. CAMPBELL: Is your motion on both or one or the other?

MR. WEISS: Our motion is actually to the positivity criteria that we expect Dr. Schänzer to discuss as to the -- what would be

considered a positive IRMS test. This is different from the Cologne study which we have also sought to exclude.

MR. CAMPBELL: Oh.

MR. BRUNET: As you can see, the Panel's considering.

MR. CAMPBELL: Mr. Young, do you have any comment?

MR. YOUNG: I do; at several levels. We didn't need to call Dr. Schänzer to say that this sample would be positive in Cologne. The issue really before the Panel is whether it was positive in Paris. In response to allegations that they have made publicly and that they state in their brief, where they say this sample would be positive at Sydney, Cologne and UCLA. Rather than let that stand --

MR. MC LAREN: You say it would not what?

MR. YOUNG: -- we've identified those laboratory directors as witnesses.

As to the study itself, that can't possibly be considered under the Procedural Order Number 2, you haven't produced documents, because in the transcript of our hearing, it was

said by Arbitrator Campbell, and I think it's clear:

"But as I understand it, Richard," this is Chris, "and Mr. Suh, to the respect that you got some documents from other labs later on, that would not be covered by the agreement. Is that correct?"

So that leaves us with whether this is somehow an incomplete study. And I think what Dr. Schänzer will say is that this -- the data in this study -- it's a progress report to WADA -- but the data in the study has been presented to the Cologne workshop and has been accepted for publication. That's Exhibit 33.

Exhibit 34 is additional research that they're doing as a follow-up to data that's been accepted for publication.

MR. CAMPBELL: On the positivity criteria from the Cologne lab, did you have any of those documents before February 22nd or 23rd?

MR. YOUNG: Yes. Any document that I got -- the document I got from the Cologne Lab was the study, and I gave it to the other side. And I don't have documents on their positivity criteria. All I'm going to do is ask him

whether this sample would have been reported positive in his laboratory, and if that's something that this Panel isn't interested in hearing, then I won't ask him that.

MR. CAMPBELL: Mr. Weiss, it was my understanding from reading the transcript of our agreement with respect to testimony concerning the Cologne lab or -- that wasn't covered. The Cologne lab wasn't covered by that exclusionary rule to the extent they didn't have the documents before February 22nd.

MR. WEISS: Well, that could -- I think that is the correct reading of the transcript; however, I think the idea was the reason why we got into that agreement was a simple discovery agreement that if they had documents that they were going to use against us, they could not just simply not produce them and then elicit testimony so that we had no way to cross-examine them.

We asked for the documents relating to the WADA laboratores. Then when they started that, what we did in our brief, we took the best available information. Since they refused to produce documents as to the Cologne positivity

criteria, we set forth, based on our documents, to the best of our knowledge, that this test would not be positive under the Cologne positivity criteria. In the response brief, they simply state it would be positive in the Cologne -- positive criteria. They provide no documents and, even now, they say they will provide no documents supporting the evidence. All we have is Dr. Schänzer's testimony that it would be.

And that, I think, is the problem, that we can't effectively cross-examine him, because they haven't produced any of the documents to support his testimony.

MR. CAMPBELL: Did you ask for documents from the Cologne lab?

MR. WEISS: We asked for documents through USADA, through the opposing party, to receive documents from Cologne as to any WADA or other laboratories on the positivity criteria, and that is our second request for documents, C3.

MR. YOUNG: Again, may I refer to the hearing transcript.

"Arbitrator Campbell: I just want

to make sure that everybody understood that the limits of the documents that don't come in are only documents for LNDD and maybe from USADA so everybody understands that." And --

MR. CAMPBELL: That's clear to me.

MR. YOUNG: And -- excuse me.

And then: "Mr. Suh: Yes."

MR. CAMPBELL: That -- that seems clear to me.

MR. WEISS: Well, we asked USADA. We requested these documents from USADA, who could have obtained these documents, and said, under that agreement, it would be a document from USADA. USADA --

MR. CAMPBELL: Did you bring a motion to compel on that?

MR. WEISS: Well, we've had several discussions about the discovery. That hearing was a discussion on the discovery, in which we asked for that, those documents.

MR. CAMPBELL: It's denied.

MR. BRUNET: Okay. Mr. Young, would you call your next witness?

MR. YOUNG: We're going to call Dr. Schänzer in Cologne.

MR. BRUNET: You are really going to

call him?

MR. YOUNG: If he's still there.

MR. LANG: Are you ready? Okay. You're going public right now.

There may be some feedback in the beginning.

MR. SUH: Mr. Chair? A procedural question: If we want to show him documents, how do we end up doing that? Is there a --

MR. BRUNET: That's a good question that I thought would've been resolved between the parties in the past. Mr. Young and Mr. Barnett?

MR. YOUNG: We have sent him all of the exhibits in this case.

MR. BRUNET: So he will be referring to the Bates numbers or to the exhibits?

MR. YOUNG: Right. Now, that means he got the same enormous boxes of documents that you all got; and how much facility he has finding things, I don't know. But in anticipation of that, we sent him all the exhibits on both sides.

MR. BRUNET: Thank you.

MR. YOUNG: Are you there, Dr. Schänzer?

MR. LANG: Okay, sir. There you go.

THE WITNESS: Okay.

MR. YOUNG: Dr. Schänzer, can you hear us okay? Hello, Dr. Schänzer?

THE WITNESS: Yes. I can hear you, but very low.

MR. YOUNG: Is this better?

THE WITNESS: A little bit, but not as good.

MR. YOUNG: How about now?

THE WITNESS: A little bit better, but not as clear as I would like to have it.

MR. BRUNET: Hello, Dr. Schänzer, can you hear me?

THE WITNESS: Yes, I can hear you.

MR. BRUNET: This is Patrice Brunet. I'm the chair of the Panel.

THE WITNESS: Yes, I can hear you.

MR. BRUNET: We will proceed now with the swearing-in.

WHEREUPON,

WILHELM SCHÄNZER, Ph.D.,

the witness herein, having been first duly sworn telephonically to state the whole truth, testified on his oath as follows:

EXAMINATION

BY MR. YOUNG:

Q. I'm switching microphones now, Mr. Schänzer. Can you hear me better?

A. Yes, I can hear you.

Q. All right. This is Richard Young.

A. Yes, Mr. Young.

Q. You're live in a courtroom.

A. Yes.

Q. And the Panel is Mr. Brunet, Mr. Campbell and Mr. McLaren, and then Dr. Botré is here as the Panel's expert; and then you have lawyers on Mr. Landis' side and lawyers on USADA's side.

If at any time you have a hard time understanding any of us, just let us know, and -- and whoever is asking the question will take their time and go back over it.

A. Okay.

Q. Are you ready to begin?

A. Yes, I am ready to begin.

Q. Okay. I'm going to ask you some questions about IRMS analysis to detect the use of testosterone.

And could you briefly give the Panel your experience with IRMS in that area?

A. Yes. I'm Wilhelm Schänzer. I'm head of the Cologne Laboratory since 1995, and I am working in this seat of anti-doping science since 1989.

My experience in isotope ratio mass spectrometry measurement of steroids started in 1997, so about ten years ago, when we obtained the first machine, and used this technique over ten years. And in the last, I think, three years, we analyzed about 1,500 urine samples from controls, doping control samples, by isotope ratio mass spectrometry.

In general, these samples were follow-up studies, which were applied when T/E ratio was greater than 4 or when other suspicious parameters in the steroid profile occurred.

Based on this, samples in the last

two or three years that involved 50 to 60 samples, which we reported positive for -- or by the isotope ratio mass spectrometry, adverse analytical findings for testosterone or the kind of other prohormones which influenced the data values of the normal steroids.

The technique is very, very well developed and highly reliable and, at this state of art, a very well-accepted technique from my point of view.

Q. And were any of those 50 or 60 positive results subsequently overturned by a hearing panel?

A. In this laboratory, two or three years, we had no hearing panel because our results were --

THE REPORTER: I can't hear.

A. -- accepted by the athletes and the federations and especially in those cases where we applied the techniques of other laboratories which have not (inaudible) isotope measurement --

THE REPORTER: I can't hear.

A. We also have no problems that this regards had to go to any kind of further

investigations at the court. So no problem in all cases.

Q. Thank you, Dr. Schänzer.

And for the benefit of the court reporter, who we have taking this down, if you could just speak a little more slowly --

A. Yes.

Q. -- that would be easier on her.

A. Okay. No problem for me.

Q. Are you looking for an answer?

THE REPORTER: The last answer, I missed some of what he said, because I was saying "I didn't hear him." He said "in his laboratory two or three years, I've been..." And I didn't hear.

A. Are you waiting for an answer?

Q. No, no. The court reporter is saying she didn't get down your last answer, so let's -- let me ask you again.

A. Okay.

Q. And you can give her an answer slightly more slowly.

A. I think that's correct.

Q. The question that I'd asked was, of the 50 or 60 samples that you've reported

positive using IRMS in the last three years, have any of those been overturned in any court or arbitration proceeding?

A. As far as I know, there was no further going over to the court. In those cases, where we applied the techniques for other laboratories who were mainly involved in the case, I have no exact data. And in all the cases I get no feedback from them -- from them that there had been any problems with the data and the results, so that was analytical findings.

Q. And would it be typical that if there was a case where there was a challenge to your IRMS results that you would be called in and advised and asked to defend it?

A. In general, this would be the case.

Q. Okay. Have you reviewed the documentation packages prepared by the Paris laboratory?

A. Yes, I have looked over the files and the data and, from my opinion, the isotope ratio mass spectrometry technique from the Paris laboratory was well applied. The technique is presented in excellent, excellent field. I know

the laboratory since several years. And the data I have seen is, from my expertise, excellent, and it clearly shows an adverse analytical finding for the misuse of testosterone or kind of other prohormones of testosterone.

THE REPORTER: Or kind of what?

DR. BOTRÉ: Prohormones.

MR. BRUNET: Dr. Botré, what was that word?

DR. BOTRÉ: Prohormones.

MR. BRUNET: Prohormones.

THE WITNESS: Prohormones.

MR. YOUNG: Prohormones. Did I get that right?

DR. BOTRÉ: Yeah.

Q. Have you looked at the controls that were run in connection with the athlete's --

A. Yes.

Q. -- Stage 17 sample, and are you satisfied with those controls?

A. Yes. I've seen the controls, and I

am satisfied with all the data. I have seen the peak forms, the peak shapes, and also the internal reference compound, and I think all of

this data gives me a clear indication that the technique, the instrument, runs in good, excellent condition, very well performance of the instrument, and the data are clearly presented.

Q. In the interest of time, and because we've already heard from other witnesses on this, I'm not going to take you through all of the different controls. But I will ask you to look at one of the questions that Mr. Landis' lawyer keeps raising, and that has to do with the internal standard.

And if you'd take a look at the documentation package, I think they're Exhibits 24 and 25; it's Pages 185 and 351 of the documentation packages.

A. Yes, I have --

Q. Give everybody just a second to find it.

When you've found it, let us know, and then I will ask you a question.

MR. BRUNET: Can you give us those page numbers again, please?

A. One moment -- one moment, please.

Q. 185 and 351.

A. I have already the data file, and I have -- okay.

Q. So let's look at Page 185 first, and there are -- the testimony yesterday from the witnesses from the Paris lab was that they used the internal standard --

A. Yes.

Q. -- which is 5-alpha androstanediol?

A. No, androstenol. It's an androstenol; it's not a diol.

Q. I'm sorry, the androstenol -- as a measure of retention time --

A. Yes.

Q. -- and they don't pay attention to the quantification.

A. Yes, that's correct.

Q. But in your view, if you did pay attention to the quantification on Page 185, would the differences in the values reported there trouble you?

A. I have looked to the data of the blanks and suspicious samples, and I've came to a calculation that the standard variation of .65 per mil, from which is, from our point of view, very well acceptable. We have similar variation in this internal reference component in our laboratory. This variation is a little bit bigger than the other steroids because this is always eluted very early in the chromatogram and normally also more influenced by the biological background.

So this is our experience over the last years that this is more -- a little bit more variation, but the variation in this sample is, from our point of view, very well acceptable, so in our laboratory we obtain similar variations.

Q. And would that apply to the B sample as well?

A. The B sample as well, how I calculated a standard deviation of the sample for the return of .59 per mil. So this is also a very well acceptable value, would show that the instrument is running under perfect conditions and the data providing are highly reliable.

Q. What metabolites does the Cologne laboratory look for today in analyzing samples using IRMS?

A. Actually, we are using on a routine

basis the main metabolites from testosterone which is androsterone and etiocholanolone, and we use as endogenous reference steroids, 11 hydroxy androsterone or pregnanediol --

THE REPORTER: Excuse me?

A. This is --

Q. Let's stop, because the reporter needs the scientific terms again.

A. We use androsterone and etiocholanolone.

Q. Etiocholanolone?

A. Etiocholanolone, as analytes, and as reference steroids --

THE REPORTER: Excuse me?

Q. And as an exogenous reference compound?

A. And it shows the normal values in the body, pregnanediol and 11 hydroxy androsterone.

Q. Okay.

A. We use this as a definitive conclusion that the sample is positive, higher than difference -- it's the difference between androsterone and etiocholanolone is higher than 3 per mil.

We additionally analyze the suspicious sample, 5-alpha diol, and testosterone itself, and 5-beta diol to provide additional information.

Q. If you could take a look at Page 352

of Exhibit 25, please.

A. 352? One moment. This is 352, which --

Q. It's of the B documentation package.

A. It's the B documentation package, correct. This picture presented the values of the -- of the sample analyte with the differences calculated, and this gives results which the laboratory reported results higher than 3 per mil, so the androsterone, 11-keto, from our opinion, is the difference here in this case is 3 per mil and 5-alpha diol minus 5-beta diol. From their conclusion, they consider an uncertainty of .8 per mil. They conclude that the 5-alpha diol difference to the 5-beta diol exogenous reference compound is 6.39 per mil, is clear evidence for an adverse analytical finding.

Q. And my question to you is, if you were to have analyzed these samples and obtained

this data, would you have called the sample positive?

A. Actually, we use the differences between androsterone and pregnanediol, and also for etiocholanolone for reporting an adverse analytical finding and, in this case, I would have the sample reported positive for the difference between androsterone and pregnanediol higher than 3 per mil.

Q. And of that higher than 3 per mil, would you then add on top of that any uncertainty figure?

A. This uncertainty the laboratory in Paris' used is in our reference population and in our criteria included in the 3 per mil difference.

So our 3 per mil criteria was clearly established by a reference group of 50 to 60 persons with calculating upper -- upper end limits, and this value included all the particular variance, the analytical variance, the method variation, and isotope variation for the uncertainty, which is similar, in general, to the -- to the measurement alone to the other labs. But this is included in the 3 per mil

criteria.

So, in any case, if we have a difference higher than 3 per mil, the sample will be declared positive as it was in this analytical finding.

Q. Let me direct your attention to Exhibit 33.

A. One moment please. 33. I have -- this is the textbook study?

Q. Yes, it is.

A. In my -- in my document, it's 34.

Q. I'm sorry.

A. I have 34 and 34 A.

Q. All right. I'm sorry. I'm going to ask you about 34.

A. Yes. In my file, it is 34.

MR. CAMPBELL: Richard, it's 34 in ours as well.

Q. Okay. I'm sorry, sir. It's 34 and 34 A.

Has the data in this document been presented in any public forum?

A. This data is -- reports, yes, from the WADA project -- and the data has been presented the beginning of this year in March,

beginning of March, to the International Cologne Workshop of Doping Analysis. So this data has been presented to all the scientists internationally, and the data have been supplied for publication in the proceedings, and they are well accepted.

Q. And has the data been accepted for publication?

A. The data has been accepted, and publication is in progress.

MR. CAMPBELL: Mr. Young, I've got a question.

When I denied their motion, I denied their motion on the basis of some documents regarding three ions. I don't know if they're confused, and I don't want this -- to be any confusion on this issue.

Is this the study that we've been talking about, the Cologne study, and are -- do you want to renew your objection to this study? That's -- that's my question.

MR. WEISS: Correct. We would argue that this study has not been peer reviewed and is incomplete.

MR. CAMPBELL: Okay.

Q. And Dr. Schänzer, is the data from this study --

A. Yes.

Q. -- that has been accepted for publication, is that incomplete?

A. Incomplete? No. For this -- this data, at this test is, the first part of the WADA-supported project which includes all the GC/MS measurements of all of this data, of this study, and it also includes this data of 1,000 with clearly analyzing all the isotope values during the application for this data within this study which will be published soon.

MR. CAMPBELL: Dr. Schänzer, has this been peer reviewed?

A. The data is -- that this data has been accepted by the reviewers, but I -- I'm not sure at the moment what is the status, if this is already going through our review processes, but, in general, this data has been accepted.

Q. And was this data reviewed in the course of the Cologne workshop by the scientists who were there? Was there any comment as to problems with this data?

A. No. It was very, very, very -- the

stu- -- the study was very interesting, and it was also very well accepted during the discussion. It shows, from our point of view, that --

MR. YOUNG: One second. We have the -- we have one of the Panel who wants to say something.

MR. CAMPBELL: Yeah. I just want to converse with the Panel before we go further.

(Panel conferring.)

MR. CAMPBELL: Dr. Schänzer, I think we need some clarification on one of your answers.

THE WITNESS: Yes.

MR. CAMPBELL: Do you know whether this document has been peer reviewed?

THE WITNESS: What question again? I didn't understand the question.

MR. CAMPBELL: Has this document been peer reviewed?

A. The document is in a position that it has been accepted at the moment, so this proceedings, yes, and it is now in the hands of two independent reviewers. And I have not the status, actually, what is the final -- final

outcome. So there may be some slight modification from the reviewers, but this, I don't have that actually in my mind. But the start of this at the presentation was accepted, but the final status actually is not published.

MR. MC LAREN: We recognize it's not published. Mr. Young, can you help us? Is it peer reviewed in the sense that you -- you and the Panel would understand it, or is it not?

MR. YOUNG: And Dr. Schänzer, let me state the facts, as I understand them, and then would you please -- I don't want to tell the Panel anything wrong. So, if I do --

A. Yes.

Q. -- I'll give you a chance to set the record straight.

A. Yes, correct.

Q. To the extent that it is presented in front of a bunch of scientists --

A. Yes.

Q. -- who've an opportunity to comment on it?

A. Yes.

Q. -- that's -- that is --

MR. SUH: I object. Because I don't

think you should be able to cross him through this.

MR. YOUNG: No -- I'm not getting answers -- Mr. McLaren asked me a question.

MR. MC LAREN: He's not crossing. He's trying to summarize whether it's peer reviewed and then have Dr. Schänzer confirm or not.

Q. (By Mr. Young) And then Dr. Schänzer, what I've done, I think they asked me the question, not you, and -- but all I'd ask you to do is, if I get it wrong, I want to make sure that the Panel gets it right, so --

A. Correct.

Q. -- so if I say something wrong, please, correct me.

MR. YOUNG: So where I was -- Mr. McLaren, in answering your question was -- it's presented in front of a group of eminent scientists in the field --

THE WITNESS: Yes.

MR. YOUNG: -- and they have an opportunity to criticize it or comment on it at that time.

THE WITNESS: That's correct.

MR. YOUNG: Wait until I'm done, Dr. Schänzer, and then you can -- then you can correct anything that you -- that you think is wrong.

So that is a type of peer review.

THE WITNESS: That's correct.

MR. YOUNG: Then, before the document is accepted for publication --

THE WITNESS: Yes.

MR. YOUNG: -- that is another level of review.

THE WITNESS: That's correct.

MR. YOUNG: And then there is a final level of review that occurs before the document is actually published. And that is what Dr. Schänzer is saying is in process now, and he doesn't know whether they're done with that or not.

Is that fair enough, Dr. Schänzer?

THE WITNESS: Yeah, that's the start of it. The final acceptance is still pending. But the first -- the first acceptance is the acceptance during the presentation at the workshop where no objections to the data were presented by all the qualified scientists.

MR. CAMPBELL: Mr. Suh, do you have

a comment?

MR. SUH: Just that there is a difference between presenting a paper to a symposium panel and actually having it peer reviewed. Our understanding is peer review is peer review, and that hasn't been done yet. But beyond that, we submit to the Panel.

MR. YOUNG: And again -- and this is not for you, Dr. Schänzer, this is discussion between the lawyers to the Panel.

Members of the Panel, there are different levels of reliability of scientific evidence, and it would be hard to believe that one could only rely on peer-reviewed scientific evidence if the evidence is otherwise reliable, just like we rely on opinion testimony by experts, which is based on their research or their experience or whatever. I understand there may be circumstances where you'd only want to rely on peer review, because you have no other way of evaluating reliability. But I would be surprised if that were the case on every scientific document.

MR. MC LAREN: Just give us a

moment.

THE WITNESS: That's correct.

MR. YOUNG: So -- so at the moment, Dr. Schänzer, since you can't watch what's going on, the Panel are all talking to each other, and we will hear back from them shortly, so just, please, be patient and hang on the line.

THE WITNESS: Yes.

MR. MC LAREN: The ruling is that we're going to treat this as being sufficiently complete to allow it. We recognize that the final review process of publication is still in progress, but given that it was reviewed at the workshop and subsequently reviewed for publication, we're going to treat that as sufficient in this case.

So go ahead with your examination.

MR. YOUNG: Thank you.

Q. (By Mr. Young) Dr. Schänzer, in your paper, what does it tell us about the relationships between the 5-alpha and the 5-beta diol in terms of what happens when you use testosterone gel?

A. From the data, we observe that the 5-alpha --

MR. MC LAREN: Dr. Schänzer, could I just stop you for a moment? It's Richard McLaren. I'm one of the arbitrators. Mr. Young and Mr. Suh, we were just passed a note from our Panel expert that he was the chair of these meetings.

Do either of you have any comment on

that before we continue here?

You're shaking your head, Mr. Young. I can't see Mr. Suh.

MR. YOUNG: No. I have -- I have no comment and no problem.

MR. SUH: No, no problem. Thank you.

MC LAREN: Okay. I'm sorry. Go ahead.

You better repeat your question.

DR. BOTRÉ: I didn't want to hide this. Sorry.

Q. (By Mr. Young) So go ahead, Dr. Schänzer.

A. Yes. The data show that the 5-alpha androstane diol compared to the 5-beta diol is much more influenced. It's more, we say, depleted, of the testosterone, the application,

as the 5-beta diol and this made the antidote, as it is applied where the cream is being on the skin, yes? And in the skin, normally, this cell is reported to be a high 5 alpha reductase activities. So this is the -- N 5, which converted the testosterone mainly to the 5-alpha isomers.

So this can be one explanation that the 5-alpha androstenediol seems to be the best parameter, and it's the most of the best steroids, which is mostly influenced in the isotope values, because the testosterone has a dif- -- clear different isotope value than the other steroids normally produced in the body.

Q. Could -- could you look at figure 20 --

A. Yes.

Q. -- of your study, please? It's on Page 15 of the study.

A. Yes, Figure 20 on Page 15.

This figure?

Q. Is it what I've put up as Figure 20.

A. Yes.

Q. Can you see that?

A. Yes. Figure -- Figure 20 gives two

charts. The other one is the difference of testosterone to our internal standards, and the other sample from the other figure is a difference of 5-alpha androstenediol to the exogenous reference compound.

MR. YOUNG: And James, I'd like 20 and 21 up at the same time, if you can do that.

A. This -- can you repeat your question? Yes. Because 20 and 21 are the bars corrected of the sample at the same time. So this means the delta in column 1, in Figure 20 and 21, are the data corresponding at the same time and so the other chart have bars too.

Q. (By Mr. Young) And so am I reading that correctly that, after the administration of testosterone gel --

A. Yes.

Q. -- the 5-alpha was affected twice as much as the 5-beta?

A. In this case, it was much more inference than the 5-beta; that's correct.

Q. And then, was that also true after the athlete had taken time off from application of testosterone gel, and then it started again?

A. Yes, that's correct. So this means

that it's -- the response is seeded already for one-week application of Testogel given --

THE REPORTER: I didn't hear.

A. -- and in Columns 5 and 6, it was stopped Testogel application and then in Column 7 and 8, it was a time and a test application was continued. And then, now, also at this time, the data -- the isotope value had clearly changed higher than 3 per mil. Not much under the first peak, but this is one.

MR. BRUNET: Dr. Schänzer, this is Patrice Brunet. I'm the chair of the Panel.

THE WITNESS: Yes.

MR. BRUNET: If you could speak, maybe, at a one-inch distance or, rather, a three-centimeter distance, on the telephone --

THE WITNESS: Okay.

MR. BRUNET: -- because we're getting a -- it's -- sometimes it's difficult to hear you.

THE WITNESS: Okay.

MR. BRUNET: And just make sure that you speak slowly, especially when you get into the terminology.

THE WITNESS: Yes.

MR. BRUNET: Thank you.

THE WITNESS: Okay. Is this better now?

MR. BRUNET: Did you want to repeat it?

THE WITNESS: Okay. Should I repeat?

MR. BRUNET: Yes, if you can repeat your answer that would be appreciated by the court reporter.

Q. (By Mr. Young) Do you remember my question? My question was -- well, let me take you through -- the green bars at the beginning of these charts represent what?

A. The green bars represent the time when no Testogel was applied. The rest of the samples taken during the time period when the Testogel was applied.

In this case, the study was that

they started without Testogel at the beginning. Then we take one -- the person gets one week Testogel, and then one week without Testogel, the next week with Testogel, and then it was stopped. So this means -- the red bar indicates the changes on the isotope values during the

Testogel application.

MR. BRUNET: Dr. Schänzer, this is Patrice Brunet again. Just, in language, I just want to clarify that when you say Testogel, you mean it's the testosterone gel?

A. Yes.

MR. BRUNET: All right. Thank you.

A. That's an abbreviation which we use, testosterone gel, we will say -- we always use the term Testogel.

MR. CAMPBELL: Mr. Young, at some point, I'm going to want to ask him a question about this, but I don't want to interrupt your testimony or your question.

Q. I'm going to ask him one more question, and then you can ask him questions about that. That would probably make sense.

My -- my final question to you, Dr. Schänzer, would be, looking at the IRMS data in the this case, do you have any doubt at all that this was an athlete that was administering exogenous testosterone or its precursors?

A. I think that the data clearly shows, or gives evidence, that testosterone, or a precursor of testosterone, was used; and the

data is high in agreement with the kind of test application or the kind of very low application of testosterone.

MR. YOUNG: I have no further questions of this witness.

Mr. Campbell, would you like to ask him questions about Figures 20 and 21 now?

MR. CAMPBELL: Yes. Unless, Mr. Suh, you would rather start your cross first.

MR. SUH: No, Mr. Campbell. We'd like to hear your questions.

MR. CAMPBELL: Okay.

MR. YOUNG: And then, Dr. Schänzer, the first person who's going to ask you questions, and then they can introduce themselves, is a member of the Panel, Mr. Christopher Campbell, and then when we switch over to Mr. Landis' lawyer, Mr. Suh, he'll be introduced separately. Okay.

EXAMINATION

BY MR. CAMPBELL:

Q. Dr. Schänzer--

A. Yes.

Q. -- during this period that you

performed this study --

A. Yes.

Q. -- did you also monitor the endogenous production of the individual steroids --

A. Yes.

Q. -- steroids to see if there was any suppression?

A. Yes.

Q. And what did you find?

A. In general, the epitestosterone was suppressed. The 5-alpha steroids was mainly increased and also the testosterone compared to normal -- normal values. So, in general, if you use the ratios of testosterone to epitestosterone, if you use the ratio of the 5-alpha diol to the epitestosterone, this ratio shows, during this study, a clear technical change in their ratio.

MR. CAMPBELL: And -- and I'm not a scientist, so I may be a little bit unclear, but I think you said the epitestosterone was suppressed. But I'm thinking more about sort of a steroid screen that you would do? Over the sort of the natural reductions of the other sort of steroids that an individual had.

A. Yeah. We saw -- on this studies, we had an 18-person test which was doing this, and only in half of the persons of the test took an application, the T/E ratio was higher, was increased higher than -- than 4. And in some individuals, an increase of the test -- of the epitestosterone was not higher than four, and this is still a problem for doping control.

MR. CAMPBELL: Yeah. And I'm not talking about the T/E ratio. I'm talking about the suppression of the natural endogenous steroids that you -- that we all produce normally.

A. Yes.

MR. CAMPBELL: And perhaps, I just don't know what I'm asking, but --

A. Okay.

MR. CAMPBELL: But I see Dr. Bowers smiling over there. Could you help me out, Dr. Bowers?

DR. BOWERS: You're asking about steroid profile.

MR. CAMPBELL: I'm asking about the steroid profile.

A. Yes, that's -- that's correct.

Q. And were there -- did you notice

suppression in the steroid profile? Is that the right way to ask it, Dr. Bowers?

MR. BOWERS: Yes.

MR. CAMPBELL: Yes.

Q. Do you understand, Dr. Schänzer?

A. Your question was whether we obtained changes in the steroid profile?

Q. Yes.

A. And I have to say yes, and -- well, actually, in this case, we also obtained changes in the steroid profile, which could be seen in the testosterone concentration in the ratio from testosterone to epitestosterone and also from some other parameters.

MR. CAMPBELL: Thank you.

MR. BRUNET: Thank you.

Mr. Suh?

Thank you, Dr. Schänzer. We will now have Mr. Suh ask you some questions on cross-examination.

MR. SUH: Thank you. Actually, Mr. Jacobs will begin.

MR. BRUNET: I'm sorry. That would

be Mr. Jacobs then.

MR. SUH: Thank you.

MR. BRUNET: Dr. Schänzer, I know that you've been on stand by for quite a while to testify. Would you rather take a 15-minute recess at this point in time?

A. Do you need the interruption?

MR. BRUNET: No, we don't need an interruption. At this point I'm asking if you would rather have an interruption at this point because you've been on standby for quite a while.

A. I take a glass of water now.

MR. BRUNET: And we'll continue then.

A. Yes.

EXAMINATION

BY MR. JACOBS:

Q. Dr. Schänzer, this is Howard Jacobs. Can you hear me?

A. Yes, I can hear you.

Q. I want to ask you some other questions from the study that we were talking about.

If you can look at Exhibit 34 on Page 14 at Figure 18. Page 14.

A. Figure 18.

Q. Figure 18, yes.

This is a chart showing values received for one of the volunteers, and again, the green bars are when there's no testosterone gel administration, correct?

A. In this case, yes.

Q. And the red bars show the values when testosterone gel is applied, correct?

A. Yes, that is correct.

Q. The first chart on Figure 18 is T/E ratio, and there's a blue dotted line that goes --

A. Yes.

Q. -- across?

A. Yes.

Q. What is the value at that blue dotted line?

A. The value is the T/E ratio.

Q. I know. But we can't read the value that is corresponding to the dotted line. Can you tell us what that is?

A. We are talking to the next one, yes?

Q. I'm looking at Figure 18 of your study on Page 14.

A. Oh. One moment. I got 18. Then I'm on the wrong side. Okay.

You are looking to the left side of the box, yes?

Q. I'm looking at Figure 18 at the graph for T/E ratio.

A. Okay. That is the ratio, and the graph shows, if you see the dotted line, yes? The dotted line, this means that the -- the T/E ratio of 5 -- of 4, I think. So, the interruption is, I think 5, 10, 15, 20, 25, on this way.

Q. Okay. So the dotted line is a T/E ratio of 5 --

A. Or 4.

Q. -- to 1.

A. 4 to 1.

Q. 4 to 1?

A. It's an interrupted line, yes.

Q. So what this shows for this volunteer, if I understand it correctly, is, every time this volunteer was administered testosterone gel, his T/E ratio went above 4,

correct?

A. This is what, T/E epi -- yes. You see, in this -- during this state of application, the T/E values are increased, higher than 4, correct.

Q. Let's take a look at Figure 19 on the same page.

A. Yes.

Q. And the top graph for T/E ratio, and I want to make sure I understand this is a volunteer who was intermittently given testosterone gel, so he would go some period of time without testosterone gel, and then some period of time with, and then some period of time without. Correct?

A. That's correct.

Q. And again, the green bars represent instances where the testosterone gel was not applied, and the red bars correspond with the times that testosterone gel was applied, correct?

A. That's correct, yes.

Q. And what this shows for this individual is that every time the testosterone gel was applied, the T/E ratio was at or above

4-to-1, correct?

A. Yes, in this case, for this sample, the T/E ratio is higher than 4.

Q. Now, let's turn to Exhibit 34 A.

A. 34 A, yes.

Q. This is a continuation of the same study; did I understand that correctly?

A. Yes, with another -- with another person.

Q. Okay. And again, we have on the T/E, the red bars represent when testosterone gel is applied, and the green bars represent when testosterone gel is not applied, correct?

A. That is correct, yes.

Q. And what this shows for this individual is that every time testosterone gel was applied, the T/E ratio was well in excess of

10-to-1, correct?

A. That is correct, yes.

MR. JACOBS: I'm going to pass to Mr. Suh for the remaining questions.

A. What did you want?

MR. BRUNET: The other counsel for Mr. Landis will be continuing the cross-examination.

A. Aha, yes, okay.

EXAMINATION

BY MR. SUH:

Q. Good morning, Dr. Schänzer.

A. Yes.

Q. Yes. Just to -- before we leave the subject of your study -- when you looked through the documents for Mr. Landis' test results, did you see that, in the retesting analysis -- excuse me -- the testing of the other stages -- other stages from the Tour, that the IRMS values and adverse analytical findings were allegedly positive, but that the T/E results --

A. Yes.

Q. -- were negative?

A. Yes. One moment. I would like to look for this table, yes? So, one moment.

MR. SUH: Does Dr. Schänzer have access to a fax machine right now?

MR. BRUNET: Dr. Schänzer --

A. I have access to a fax machine, yes.

MR. BRUNET: He heard you.

MR. SUH: Well, of course. I think it might be helpful if we sent to him this

particular exhibit by fax. It's --

MR. YOUNG: He actually has this exhibit.

MR. SUH: It is --

MR. BRUNET: Is this a new exhibit?

MR. YOUNG: The old exhibit's 107.

MR. SUH: It's not this exhibit.

MR. BRUNET: Just one moment, Dr. Schänzer.

MR. SUH: Mr. Chair, there is a table that looks like this. Let me put it up just so that the Panel can see it.

What it is, is a summary of the results of the adverse analytical findings from the other stages, the alleged adverse, and then there are the -- let's see, the T/E. There it is -- right there on the third column right there, the T/E results.

Now, in their -- in USADA's brief, there is a version of this table, but it does not have the T/E results in the table.

MR. BRUNET: Okay.

MR. SUH: So I think it would be

worthwhile to just take a moment and fax this.

MR. BRUNET: So that's a document

that you've -- you have produced yourself?

MR. SUH: Yes.

MR. BRUNET: And that can be arranged to fax it to Dr. Schänzer immediately.

MR. SUH: Yes. We didn't think we'd need it for Dr. Schänzer so ...

MR. CAMPBELL: Do you have a fax machine, or should we get Bryan to --

MR. SUH: Maybe we could have your assistant fax it.

Dr. Schänzer, if you could hold on one second.

MR. CAMPBELL: He needs the number, right?

MR. SUH: Dr. Schänzer, could you tell us what your fax number is, please?

THE WITNESS: One moment, please.

MR. BRUNET: Dr. Schänzer, this will take a few minutes, so we'll call a recess for 15 minutes. We'll reconvene at exactly 11:45.

Dr. Schänzer, don't hang up the call, please.

THE WITNESS: I didn't understand what you said.

MR. BRUNET: Okay. We are taking a

15-minute break.

THE WITNESS: Can I give you my fax number now?

MR. BRUNET: Yes, you can give the fax number now.

MR. YOUNG: Not on an open line.

THE WITNESS: This is Germany.

MR. YOUNG: Whoa, whoa, whoa.

MR. BRUNET: Dr. Schänzer. Dr. Schänzer. Just a minute. You should not put that fax number over the air. We'll contact you with the fax number.

(Recessed from 11:26 - 11:50 am.)

MR. BRUNET: Dr. Schänzer, this is Patrice Brunet with -- the Panel chairman. Can you hear me?

THE WITNESS: Yes. I can hear you.

MR. BRUNET: Welcome back.

I understand you were faxed a document moments ago?

THE WITNESS: Yes.

MR. BRUNET: And that document bears the notation GDC 01363, does it not?

THE WITNESS: That is correct.

MR. BRUNET: Thank you. I'll turn

this over to Mr. Suh.

EXAMINATION (cont'd.)

BY MR. SUH:

Q. Dr. Schänzer?

A. Yes.

Q. Perhaps we could go back to the same bar graphs that we were looking at before.

A. Yes.

Q. And in essence what your study shows that with the administration of testosterone gel, that the T/E test -- that the T/E test registers a value of over 4.1; is that right? In other words, the administration --

A. The data you have seen in this delta, the T/E ratio increased -- was increased higher than 4, that's correct. This was the data you have seen in this figures for this person's P3, and I think it was P9 or 10, for this two persons. It was higher than 4, that's correct.

Q. Yesterday we had a former bike racer, named Joe Papp, who USADA called as their witness to testify that he had taken testosterone gel, and that when he had taken

testosterone gel, he had routinely not been detected by the T/E test. That is disproved by the result of your study; isn't that right?

A. This is not a dispute. If you look

to the Annex 1 in this WADA report, you will find all T/E changes for the 8 persons -- 18 persons we have investigated, and you will see, in certain persons, they will not exceed the T/E ratio, higher than 4. For example, if you look in the annex to the different persons, so following Page 18 of the report, Annex 1, for example, you see directly this is a person where the T/E ratio exceeds a maximum value of 3, not more.

So this means you have individual persons who will not exceed it, and also depending on the application, how -- what's the amount, how much of the gel really was -- if he takes the gel -- was absorbed by the skin. You will see also differences and sometimes, and also they will come back, which is not exceeding the ratio of 4. So this is not a correct conclusion to say that after testosterone gel application the T/E ratio has to -- will increase and be higher than 4.

MR. BRUNET: Dr. Schänzer, this is Patrice Brunet again. Just for reference, for confirmation, that you were referring to Exhibit 34, which is the project report --

THE WITNESS: Yes.

MR. BRUNET: -- and you were looking at Page 18, and the following page is Annex 1, which is not -- there's no number on the page, is that --

THE WITNESS: That's correct.

MR. BRUNET: -- is that what you are referring to?

THE WITNESS: It's Annex 1, but the pages are numbered with the persons: person 1, person 2, person 3, person 4, and so on.

MR. BRUNET: Thank you.

Q. Wouldn't you agree with me, Dr. Schänzer, that -- however, that in Annex 1, all of those subjects had their T/E values rise above the acceptable reference range shown within their longitudinal study?

A. Not all. I think there were -- I think, two persons were -- even their normal values were not altered significantly, if I remember from this data.

Q. Could you point us to the specific subjects?

A. Yes. If you go to Subject 18 on that last page, and Subject 16, these two subjects were no clear changes in the T/E ratio could be significantly followed.

Q. Dr. Schänzer, give us one moment while we look at that particular person that you pointed our attention to.

A. Yes.

Q. And who is the other person? You said there were two.

A. It is Person 16, and the other person was Person 18.

Q. Have you looked at the longitudinal data for -- longitudinal T/E data for Mr. Landis --

A. This is the table --

Q. -- apart -- I'm sorry -- apart from the table?

A. Yes, I have also seen -- seen this data, I have.

Q. And have you been able to have the opportunity to calculate that the mean, standard deviation and coefficient of variation of the

longitudinal data for Mr. Landis are 1.5, 0.46, and 30.76 percent, respectively?

And for the benefit of the Panel, I'll put this up on the overhead.

It's actually taken from -- this is actually taken from USADA's brief, Page 70.

A. One moment.

Q. Okay.

A. I am not at the exact table at the moment. What is it? What page is it?

MR. BRUNET: It's Page 70 in the brief, the USADA brief.

MR. MC LAREN: Mr. Young, was he

supplied with the briefs?

MR. YOUNG: Yes, in a lot of boxes.

THE WITNESS: What is the box -- what is the document name exactly? It's not within the A and B sample report.

MR. SUH: It's the USADA brief Page -- Page 70 and 71.

THE WITNESS: And what is the document?

MR. SUH: It's USADA's prehearing brief. I think the first one is prehearing, and the second one is pretrial. So it's --

MR. MC LAREN: I'm looking at it. Prehearing brief of the United States Anti-Doping Agency is the name.

THE WITNESS: One moment.

Yes, the hearing brief of the United States Anti-Doping Agency, Page 70. So this is a picture -- yes, I have it now.

Okay.

Q. (By Mr. Suh) Okay. Now, turning back to the chart that we had just faxed you --

A. Yes.

Q. -- I would like to highlight the alleged adverse analytical findings on -- they're on line 3, line 5, line 6 is the one which is Stage 17, line 7 and line 8.

Do you see that?

A. Yes.

Q. Do you see that the T/E value for -- what I will circle here. And I will simply tell you, because you can't see this overhead, of line 1, 2, 3, 4, 5, although it reports an adverse analytical finding from IRMS, that it is below the reference range in the longitudinal study, the 1.8 T/E.

A. Yes. What is your question?

Q. Do you see that that's below -- would you agree that that's below the applicable reference range?

A. What is -- what is your question?

Q. Would you agree that it is below Mr. Landis' applicable reference range?

MR. YOUNG: Could we have a clarification of what "it" is?

A. Of this? This calculation, yes --

Q. Yes.

A. -- is based on screening data, and I think within this is one confirmation data. And I think if I'm to view -- review this thing, I think it would be -- you have to be very careful to calculate here this thing, but I look to the T/E ratios, which are presented here.

Q. Let me -- let me ask the question again --

A. Yes.

Q. -- just so it's clear.

A. I need -- I need a clear question.

Q. Would you agree that this T/E ratio, on line 1, 2, 3, 4, 5, for July 18th, is within the reference range as shown in the longitudinal study?

A. Yes, not a problem. Normally, you can make the specific calculation; you can say these are within these calculation ranges. That is, I would also agree by this calculation.

Q. Yes. And then going down 1, 2, 3, 4, 5, 6, 7, 8 --

A. Yes.

Q. -- on July 23 --

A. Yes.

Q. -- that value of 1 T/E ratio is within the applicable reference range as shown in the longitudinal study?

A. Yes. I think from this calculation, it is within the range.

Q. Earlier you were talking about the fact that no one has -- and correct me if I am wrong about this -- but no one has overturned any of the positive IRMS results done by your lab, correct?

A. Once again, can you repeat your question?

Q. Yes. When you were testifying

earlier --

A. Yes.

Q. -- I believe you said that no one

had -- that at no time had your -- an adverse analytical finding, as shown by your IRMS method been overturned?

A. In the last -- in the last two or three years.

Q. And -- during the last two or three years?

A. Yes.

Q. And were any overturned prior to the last two or three years?

A. Was over?

Q. Overturned.

A. What does it mean, overturned?

Q. Found to have been invalid during the course of some arbitration or court proceeding.

A. No, that -- no objection.

Q. How many times have your IRMS results been challenged?

A. How many times? The last two or three years, we have no -- no challenge in this cases.

Q. Do you know any personnel associated with the LNDD laboratory?

A. Personally?

Q. Yes, personally.

A. I had, two years ago, sometimes connection during workshops and some other scientific meetings.

Q. And with which person?

A. I directly had no contact with -- or maybe with the lab director, the lab director from the Paris laboratory I have contact personally. I have contact with some scientists from the lab -- but I directly have no contact to the technicians of the laboratory.

Q. And you had direct contact with, it would be Dr. de Ceaurriz at LNDD, correct?

A. Sometimes during the workshop, we had contact, and we discussed some things; that's correct.

Q. And what kinds of things did you discuss with Dr. de Ceaurriz?

A. During the workshop, I think, two -- one or two years ago, I discussed some scientific facts with him.

Q. And what was the subject of that workshop?

A. There was so many subjects. In general, I tried to discuss about the EPO and the hematocrit things. I've never discussed in, I think, concerning isotope measurements.

Q. Your testimony is that you have reviewed all of the -- the document package and all of the related documents in this case, correct?

A. I hope -- I hope that I've reviewed all of them. I cannot guarantee that I have done it 100 percent.

Q. You testified that all of the peak shapes and forms were all good.

A. From my experience, from my point of view, I find the -- them acceptable.

Q. Do you, in your mind, see a difference between "acceptable" and "good," or are they both the same?

A. "Acceptable" is "good" for me.

Q. And when we say -- when you say that the peak shapes were all good, I'm going to ask you a series of questions. And I'm going to ask you if you see these issues in the -- in the peaks.

And I'm going to refer to the peaks as a chromatogram, as the chromatogram is the -- the graphical depiction of the peaks.

A. Yes.

Q. And I'm going to ask if you have

seen any of the following issues.

A. Yes.

Q. Okay?

A. Yes.

Q. Have you seen any issue related to high or sloping baselines?

A. You must research a special chromatogram.

Q. No. I'm just asking -- because you said earlier that all of the peak shapes were good -- I'm asking if --

A. For an analyte, on the analytes, which are androsterone, etiocholanolone, 5-alpha diol, 5-beta diol, and the 11-keto, I have seen in the chromatograms were from my -- from my experience and my expertise, I would confirm them as good -- good forms.

Q. Well, I'm asking about a specific component of good.

A. Okay.

Q. And that is whether or not you see, in any of the chromatograms associated with these adverse analytical findings, a sloping

baseline problem.

A. Sloping baseline? I have to see the chromatogram. I think sloping baseline, we have especially -- if you have clear standards, sometimes sloping baseline has to be rated, from my point of view, in direction with your lab standards --

THE REPORTER: Excuse me?

A. -- so I need to -- I can only answer the question to clear data, I have to see what the impression of this, for me to see the data, and then I can say this is, from my point of view, acceptable or not.

Q. Well, earlier you had said that all the peak shapes were good and that you had reviewed the data --

A. Yes.

Q. -- and so I'm asking you, based on the review that you have already done --

A. Yes.

Q. -- whether or not you see a sloping baseline problem. Do you see one in any of the chromatograms associated with any adverse analytic findings in this case?

A. Okay. Okay. Yes. I've not seen

that the sloping peak makes a problem -- gives a problem.

Q. Okay. Do you see any problem in the chromatograms with co-eluting peaks, any of the chromatograms associated --

A. Yes, I have --

Q. I'm sorry. If you could let me finish my question.

A. Yes, correct.

Q. -- any of the chromatograms associated with the adverse analytic findings in this case?

A. I have also seen, for this case, the GC/MS data file from all chromatograms with clear mass spectra, and from this point of view, I saw no interferences to the signals, and this is fully acceptable.

Q. So that's for GC/MS.

Have you -- do you have the same conclusion for the IRMS?

A. Because this is done with the same column, so I see no interference which can -- which cause problems for the data.

Q. Do you see any problem in the chromatogram, in any chromatogram, associated

with any adverse analytic finding in this case as it relates to peak separation, good peak separation?

MR. YOUNG: Now, this witness has been talking -- clarification --

THE WITNESS: Yes.

MR. YOUNG: -- and this is for the Panel -- are we talking about IRMS only, which is what this witness has talked about or has the question expanded into the T/E ratio chromatograms?

MR. SUH: I -- the question was clear. Please stop coaching the witness. The question was clear.

MR. CAMPBELL: Mr. Suh, are you referring to any --

MR. SUH: Any chromatogram.

MR. CAMPBELL: Okay.

A. So the analytes which are of interest in this case, I have looked to the peak shapes, and I would fully accept the peak shapes; and for me, from my experience -- from my expertise, I would say they are good, sufficient --

THE REPORTER: Good what?

MR. CAMPBELL: Mr. Suh, did that answer your question?

MR. SUH: I wasn't -- the question was going just to peak shape, I was talking about peak separation. So peak separation.

A. So the analytes, I have seen in the documents are fully sufficient, that the peak shape is sufficient for this kind of analysis. So I see there are no problem with interference which also is presented by the GC/MS systems, that no co-elution is problematic.

Q. Do you -- and that's for every chromatogram associated with the adverse analytic findings in this case?

A. Yes. To go through each of the chromatograms, I hope that I have seen all the chromatograms. And I was looking to take all the chromatograms for the different sections which were connected for the isotope ratio measurements.

Q. Dr. Schänzer, in your laboratory, do you ever, when performing an IRMS analysis, overwrite and thereby delete data generated in a sequence?

A. Now, this can happen if a sequence

is stopped by an injection, a needle broke or whatever it is, but it sometimes happens that the analyst starts a new run again and overwrites the broken -- the broken file, the file which was not completed. It can happen.

Q. And what would cause the technician to stop and overwrite the file?

A. In general, it can happen that the injection failed, yes, that the needle was broken. It can also happen that some other things failed, that the analyst started before the temperature was really at a set point and then the sequence is stopped.

It is also -- it happens often in our laboratory that a sequence is stopped based on such a, normal technical problem. And then the next start, the next sample is run.

Sometimes it can happen that this broken file is overwritten, but this can happen. That can happen.

Q. Well, what about when the file is actually completed, not when there's a problem in the middle, like a technical problem, but what about when the file is completed and data is generated and saved? Would you ever delete

that file when it's part of an analysis of a sample?

A. I -- I never -- I never make the measurements myself, and so I have to ask my scientist. Normally, it should -- it should be not overwrited -- it should -- it should not be overwritten -- that is quite, that is a thing normally which should not -- be happen, I think. But I have observed this several times that this can occur; that you have to start the sequence new, and you enter the number of the first sample; that this sample is overwritten by -- by the software automatically.

Q. Do your -- you said that in your laboratory, the 5-alpha androstenol acetate, the internal standard, which I'm going to call the 5-alpha AC, is used as part of your quality control, correct?

A. This is the androstenol. This is correct. We use it as part of the control of the etiocholanolone.

Q. And you said that, in your lab, sometimes the measurement of the 5-alpha AC falls outside of the measurement of error, correct?

A. This -- this happens when the oxidation -- the quality of the oxidation chamber goes to the end, and then this can be offset by the internal quality substance and also by the reference, by that mix, which is routinely run.

Q. And when that happens, what is the procedure in your lab?

Let's say you were running a sequence, and you saw the 5-alpha AC out of measurement of error. What happens after that?

A. Oh, there can -- there can be different -- different behaviors.

The technician has to find out what can cause this.

What I can say is sometimes it happens that the injection -- the injection system is not working perfect, that the oxidation chamber makes problems, that the needle or the injection makes problems itself, maybe was not excellent because the sample has run dry -- there are several reasons.

The technician has to find out what is the reason for such an event.

Q. And then when those reasons are discovered, what do you do with respect to that particular test?

A. In general, the test is on the file, yes? And the data will not be considered further for any conclusion.

Q. The data will not be considered further for any conclusion?

That's what I thought I heard you say, correct?

A. That's correct.

Q. In other words, you -- when you find your 5-alpha acetate out of your measurement of error, you try to discover the problem that led to that being out of the measurement of error, and then you don't consider that data, correct? The data that's part of that sequence. Is that right?

A. Hello?

MR. BRUNET: Dr. Schänzer, are you still there?

THE WITNESS: There was a little disturbance, yes, in the line.

MR. BRUNET: Could you repeat your

question, Mr. Suh?

MR. SUH: Could the reporter read it back.

Yeah, could we have it read back?

(Reporter complies.)

A. In this case, I considered the sample yes -- only the sample, yes; only the sample, not the sequence.

MR. MC LAREN: Just a moment.

The court reporter has to sit down and record what you have to say.

Could you answer again, please?

A. In this case, the sample would not be considered, it is clearly outside of the -- what we would accept, and if we have clearly located the mistake, the measurement and the sequence before, they are still valid.

MR. SUH: Okay. No further questions.

MR. BRUNET: Thank you, Mr. Suh.

Dr. Schänzer, Mr. Young will ask you a few additional questions.

EXAMINATION

BY MR. YOUNG:

Q. Dr. Schänzer, could you open up your Exhibit 24, and -- 24 to Page 351?

A. Exhibit 24. One moment, please.

MR. MC LAREN: Sorry, the page number again?

Q. Page 351, and Exhibit --

A. 24, I have no Exhibit 24.

Q. This is the documentation package. It's Page 185.

A. 185.

Q. Correct.

A. One moment.

This is A sample, yes?

Q. That's correct.

A. Yes, that's correct.

Q. And Page 351.

A. Yes, I also have Page 351. It is the B sample summary for the isotope measurement.

Q. Would -- tell me when you've got it.

A. Yes.

Q. Okay. Would any of the SI, internal standard measurements reflected on these two

pages, be so out of the range that you would disregard them?

A. No.

Q. And would any of the internal

standards measurements on these two pages cause you to disregard any of the other data on these two pages?

A. No.

Q. To clarify something that came up earlier, you were talking about the GC/MS system. Were you talking about GC/MS in the context of the GC/MS being coupled to the IRMS instrument?

A. I think that is, in general, a GC/MS system running with the same columns, the same injection columns, and the same files, and the sample is analyzed with what is parallel; analyzed, yes, to see them for each peak, which are produced in the isotope measurements with the carbon dioxide combustion chamber, to see if this peak is really testosterone, or this analyte, like 5-alpha androstenediol, and to see if the peak is clear, and if there's any interferences.

Q. And that's part of the IRMS process.

A. This is part of the IRMS process.

Q. You were asked questions earlier about T/E ratio and diol measurements.

Is an athlete's T/E ratio -- let me take a step back.

Is it the case that sometimes an athlete's T/E ratio is raised above 4 if he uses testosterone gel, and sometimes it's not?

A. Yes, that's correct. That's the problem. In some cases, that's the application.

You never know how much of the testosterone in the gel can be absorbed. There may be some differences between persons, but also in a person how he applied this, and then you never see if the absorption is completed. And also there are persons which will not reach the T- -- which will not reach the T/E ratio higher than 4. So there's a big variation, and therefore, so our actual methods, this T/E ratio of 4-to-1 is not sufficient to detect any such kinds of manipulation.

Q. And would the effect on T/E ratio be influenced by how much of the gel a person took on a particular day?

A. Yes. It can be influenced by the

amount you applied; it can also be influenced by the individual metabolism; and it can also be influenced at what time you take the sample after the gel was applied. So you, as we said, not a constant change to a constant T/E ratio, but there are variations. And often, in many cases, the T/E will not be obviously changed in such a way that we can see directly by our routine as screening procedures.

Q. And are the delta/delta measurements

of 5-alpha pdiol also affected by individual metabolism, dose, and time measured after administration?

A. In general, all of this is influenced, all the isotope measurements, by the time the sample is collected, and there will be some variation. And I think sometimes I have the feeling that -- that when we get an athlete with a positive finding, we have the luck to -- that the collection was on the right time -- at the right day and the right time. So, in general, there's a high fluctuation between the parameters. And, in general, my opinion is that all samples should be screened by isotope measurements to have a more effective doping

control.

Q. If an athlete were to take other prohormones of testosterone at the same time he was using a testosterone gel, would that affect the T/E ratio and the IRMS measurements?

A. It can also affect, yes. No data would show what happens if a perfect manipulation happens. In Testogel, maybe you got all testosterone and a kind of prohormone, so you can alter your mixtures and then --

THE REPORTER: I didn't get -- I'm sorry. I didn't get that.

Q. Could you back up a sentence and be

a little slower for the court reporter, please.

A. Okay. Sorry.

I think that isotope values and also T/E ratio may be affected or affected by the kind of application and by the testosterone gel application, by another kind of testosterone application. There are injection preparations, but also all are testosterone applications. There are prohormones which can be used, and it can also happen that the perfect manipulation is trying to use all of these testosterones at the same time to try to circumvent the detection by

the T/E ratio methods.

MR. YOUNG: Thank you. I have no further questions.

THE WITNESS: Okay.

MR. YOUNG: And then -- then await direction from the Panel to tell you whether you're done or not.

Thank you, sir.

MR. BRUNET: Thank you, Mr. Young.

Mr. Suh?

MR. SUH: No further questions.

MR. BRUNET: Well, thank you very much, Dr. Schänzer. We wish you a nice evening, and that will be the end of your testimony today.

THE WITNESS: Okay. Thank you.

MR. BRUNET: Thank you. You have a good night.

THE WITNESS: Bye-bye.

MR. BRUNET: And we're going to lunch.

One hour, please.

(Recess taken from 12:30 to 1:50 p.m. for the noon hour.)

MR. BRUNET: I apologize for being

on time this time.

Welcome back. Do we have our next witness, please?

MR. YOUNG: We do. Our next witness is Dr. Don Catlin.

MR. BRUNET: Doctor, if you can come here to my left, and have a seat in front of one of the two microphones -- or, actually, the microphones next to the binders would be -- the chair next to the binders would be the best chair.

WHEREUPON,

DON H. CATLIN, M.D.,

the witness herein, having been first duly sworn to state the whole truth, testified on his oath as follows:

EXAMINATION

BY MR. YOUNG:

Q. Thank you, Dr. Catlin.

Could you give the panel a brief summary of your academic and professional background?

A. It starts out, I suppose, at the

Yale University, where I received a bachelor of art degree. Then I went on to medical school at University of Rochester, and then I joined the army, became a major in the medical corps. And after that, I went to UCLA, where I've been ever since, starting as an assistant professor and ending up as a full professor of molecular and medical pharmacology.

In between, I was also a professor of medicine.

Q. When did you get into the drug-testing laboratory business?

A. It was in 1981, when the IOC sent somebody over and came to me, for some reason, and said, Would you be able to build-out a lab for us for the '84 Olympic Games which are already known to be taking place in Los Angeles.

Q. And were you the first director of the UCLA Olympic lab in 1984 for the games?

A. Yes.

Q. And did you continue to be the director of the UCLA laboratory until the end of

March of this year?

A. Yes.

Q. In the course of your more than 20

years' experience running the UCLA laboratory, how many -- approximately, how many testosterone and epitestosterone chromatograms have you looked at?

A. Thousands.

Q. How long -- and how many steroid profiles have you looked at?

A. Thousands.

Q. Okay. How long has the UCLA laboratory been doing IRMS or carbon isotope ratio method?

A. We started doing that in 1998, give or take a year.

Q. Okay. Could you tell me briefly what documents you've reviewed in this case.

A. Well, I'm sure I have every one of these at home. I'm not sure I've -- you know, I've turned a lot of pages, and I focused in on certain pages and documents that were more relevant to my interest.

Q. Okay. Did you spend time looking at the Paris lab's A and B documentation package in particular?

A. I did.

Q. Okay. Overall, when you look at the

IRMS results and the T/E profile, do you have an opinion on whether doping was going on in the -- by the Respondent during the 17th Stage of the Tour de France?

A. I do.

Q. And what is that opinion?

A. I -- there's no question about it. In my opinion that doping was going on. I've integrated all the information that I have, and it's just inescapable that that's what was going on.

Q. Let me -- let me talk about the individual pieces of it. First, let's talk about the IRMS results. You reviewed the delta/delta values obtained by the Paris laboratory in this case?

A. Yes.

Q. And in your opinion, are those values reliable?

A. Yes.

Q. Okay. How would you describe the quality of the Paris laboratory's work?

A. It was excellent.

Q. If -- well, let me ask you another question: You can see that, during the 17th

Stage, the delta/delta value for the 5-alpha metabolite is -- as measured by the Paris lab, had a difference of more than minus 6, correct?

A. Correct.

Q. In your opinion, from a scientific point of view, do you need more than one metabolite with that kind of difference to call a sample positive?

A. No.

Q. If the sample had been -- or was analyzed at UCLA, and you would have gotten the same results, would you have reported it positive, or how would you have reported it?

A. I would have reported it as positive, and I would write a side letter to the client, or certainly that client would be USADA, and I would explain that the sample is positive according to the WADA criteria. But I would also point out that we had written some time ago, a long time ago, a letter to clients. And if you read that letter, you would find the criteria in there are not met and by those criteria would be negatives; so I would be giving USADA fair warning that there could be an issue they have to deal with.

Q. And that document is out there?

A. Oh, yes.

Q. And in that document, it talks about both the 5-alpha and the 5-beta; is that the point?

A. It is, yes.

Q. Okay. After declaring the sample positive and giving that letter to the client, would you have been confident standing up before a panel or anyone and defending that positive result, that positive report, when you had a result like this?

A. Certainly.

Q. Let's switch gears briefly to the T/E ratio.

Have you reviewed the T and E chromatograms in this case?

A. I have reviewed some T/E chromatograms, yes.

Q. And the ones -- I'm sorry, thank you for the clarification.

I'm talking about the T and E chromatograms on the July 20th sample in the A and B documentation package. Thank you.

A. Yes.

Q. Okay. And have you also reviewed --

This is Exhibit 30, if you can look in your binders, please.

Have you reviewed that document before, Dr. Catlin?

A. Yes, I have.

Q. And I noticed that before the sample in the box, which is the July 20 sample, that there'd been some 18 prior results on this athlete reported from UCLA?

A. Yes.

Q. And then after the July 20 sample, there were two additional results reported from UCLA?

A. Correct.

Q. Is this a steroid profile that is consistent with doping with testosterone?

A. Yes.

Q. Do you have any hesitation about -- for example, what is the historical value, approximately, of the T/E ratio shown in this profile?

A. It's listed there at the bottom. The average is 1.5, standard deviation is .46. And somebody read out earlier today that the

coefficient variation is about 30 percent.

Q. And when you looked at the chromatograms for T and E in the documentation package, were you satisfied, based on your experience, that the T/E ratio was a whole lot higher than 1.5? This is on the July 20th sample.

A. Yes.

Q. And would it be consistent with normal human physiology for someone to have this kind of spike in their T/E ratio?

A. No, not at all. That's one of the most critical elements of this entire case. You don't get that kind of a spike. In fact, positive cases used to be won and lost just on the spikes like that before we had carbon ISO ratio.

Q. Okay. One of the issues in this case that was discussed at great length, before we all got here today was, where to do the retesting or the further analysis of Mr. Landis' other seven tour samples.

This is Exhibit 64? It's USADA 1477.

Are you familiar with that letter?

A. Yes, sir.

Q. And before you sent this letter to me, had USADA been pestering UCLA about the possibility of doing further analysis of these B samples at UCLA for more than a month?

A. Yes. They were pests.

Q. And was there a period of time between the middle of February and the time you wrote this letter that the UCLA IRMS instrument was actually working for a short period?

A. Yeah, it was actually up for a few

days, but by and large, it went down -- well, it went down in January. We got it up in February briefly, waiting for a part, finally got the part, and then it went down again. And it's been down ever since.

Q. Okay. And was there a period in March, where one batch of samples was reported?

A. Yes, there was, and probably more than one batch; I'm not sure exactly. But there were some reports, at least, that went out.

Q. In your opinion, when someone takes testosterone, does that have any effect on the hematocrit and hemoglobin in your blood?

A. In fact, it does.

Q. It causes them to go up?

A. Yes. They go up. The hemoglobin goes up a little bit, maybe 10 percent. It's not a huge difference. You would not be able to see it from day to day. Testosterone is very slow reacting, in that sense, so you have to look a week later, two weeks later, three weeks later. And if you do that, you'll see that they're edging up, yes.

Q. So if you had a profile of somebody's blood reports, that would be useful.

A. Oh, yes.

Q. In your opinion, would the use of low doses of testosterone enhance a cyclist's ability to recover during a long stage race?

A. Yeah, it's my opinion that a low-dose testosterone would enhance recovery from major exercise, yes. That's not only -- well known.

MR. YOUNG: I have no further questions.

MR. BRUNET: Thank you, Mr. Young.

Mr. Suh.

EXAMINATION

BY MR. SUH:

Q. Good afternoon.

A. Hello.

Q. You were the director of the UCLA Olympic lab for how many years now again?

A. Oh, 25 years.

Q. And during -- and was your lab accredited by WADA?

A. Yes. Before WADA, even, way before, we were accredited first by the IOC. That was in 1983. And then when WADA came along, we -- well, it morphed into a WADA accreditation. The IOC switched to WADA.

Q. Could you explain what WADA accreditation consists of? How do you obtain WADA accreditation?

A. Oh, gosh.

You do a lot of work.

You -- first of all, you have to be -- you have to put a petition forward to become WADA-accredited. Your national -- in this case, Olympic body, USADA, would have to say to WADA, we would like to accredit a new lab in Oshkosh, and once that file and application had been

made, then the work would begin to actually show that the accreditation is merited. And it would take -- generally three years, could take five years.

And during that time, you're accumulating people, you're accumulating standards, you're doing studies, you're training, and you're doing a lot of quality control work. And then you start taking proficiency tests, all of which go to the point that you know what you're doing. And after this period of time, and you obtain -- and if you're successful, then you're WADA-accredited.

Q. So the process to become WADA-accredited takes three to five years, correct?

A. Yeah, I don't know. Maybe people have made it shorter. I don't really know, but...

Q. Do you not really know or it takes

between three to five years?

A. I wouldn't want to say exactly how many years it takes.

Q. Well, approximately, how many years does it take?

A. Nowadays, I would say three years.

Q. And once you obtain that WADA accreditation, what do you have to do to maintain it? Let's assume that a lab obtains a WADA accreditation, for example, in 1990. What would the lab have to do after it obtained the WADA accreditation in order to maintain that accreditation?

A. Well, you have to do a number of things. You're now part of the WADA-accredited lab system, and that means that you get proficiency samples every so often, and you have to get the right answers.

Q. And what is the proficiency sample?

A. A proficiency sample is a urine sample that somebody has prepared -- generally, it's a lab in Barcelona that prepares them -- and they are either spiked or -- with a drug, or they are collected from somebody given the drug, and they're distributed -- distributed to the labs as blank -- as blind samples.

So in a typical proficiency, we would get six samples, maybe four of them would contain a drug or two, and the other two would be blanks, and our task would be to analyze them

and get the right answers.

Q. And how often does that occur?

A. I think it's three times a year, now.

Q. And aside from the testing of samples from WADA, is there anything else that needs to be done in order to maintain WADA accreditation?

A. Oh, yeah, I mean, it goes on and on and on. I'm not even sure I could tell you all the things. That you have to file reports, you have to show that you're doing research, you have to show that you're not doing certain things, and you have to be what WADA considers a good citizen of the WADA world of accredited labs.

Q. And what does it mean to become a -- to be "a good citizen of the WADA world of accredited labs"?

A. Get the right answers.

Q. And what else?

A. Don't testify against your neighbor.

Q. And testifying against your neighbor would be your other WADA labs?

A. Yes.

Q. So in order to maintain your WADA accreditation, you must make sure that you do not testify against other WADA-accredited labs, correct?

A. Well --

Q. Isn't that what you just said, sir?

A. Well --

MR. YOUNG: May the witness finish his answer? Ruling from the chair, please?

MR. BRUNET: Let the witness answer.

A. Sorry. It -- it is what I said. I would like to clarify that I don't know exactly what words they use, but it's very clear that it's not, you know, permitted to go out and testify against other labs.

Q. Are you familiar with the laboratory code of ethics?

A. Yes. I wrote it.

Q. You wrote it? How opportune.

A. I wrote the first version of it.

Q. Okay. I would like to show you -- you must recognize it -- annex B, the laboratory code of ethics?

A. Yes.

Q. Okay. And I'd like you to turn to

section 3.4.

Do you see that?

A. Yes. I do.

MR. CAMPBELL: Can I have reference for that in the exhibits, Mr. Suh?

MR. SUH: Mr. Campbell, I'm sorry. Exhibit 8. Okay?

Q. Can you take a moment to read it?

A. Do you want me to read it out loud?

Q. No, just read it to yourself, just to refresh your recollection.

A. (Witness complies.)

Q. Do you see where -- I'm going to highlight sections of it. "The laboratory should not provide testing services in defense of an athlete in a doping control adjudication."

Did you write that?

A. No. Actually, this document appears to have changed quite a bit from what I wrote some ten years or so ago.

Q. And then on the next page, the highlighted section: "The laboratory personnel shall not engage in conduct or activities that undermine or are detrimental to the anti-doping program of WADA, an international federation, a

national anti-doping organization, a national Olympic Committee, a major event organization committee, or the International Olympic Committee. Such conduct could include, but it is not limited to, conviction for fraud, embezzlement, perjury, et cetera, that would cast doubt on the integrity of the anti-doping program."

Do you see that?

A. I do.

Q. Okay. Does this mean -- is this a description of what you'd said earlier about being a good citizen of WADA?

A. Yeah, that means being a good citizen of WADA --

Q. And --

A. -- and not misbehaving.

Q. Have you ever testified -- in all the many times you've testified in an anti-doping trial -- have you ever testified in defense of an athlete?

A. Well, there was one case with Mr. Jacobs that might be classified as that. There was -- I'm not sure, but there was another case a year or two ago having to do with a hair

loss product where I testified on behalf of an athlete and got beat up kind of badly.

Q. The case with Mr. Jacobs, was that the Zach Lund case? The Zach Lund case.

A. Actually, I think Mr. Jacobs was involved with the two cases: The Zach Lund case and another one.

Q. The Zach Lund case, though, you were testifying on -- on behalf of USADA; is that correct?

A. That's right.

Q. And in the other case, which is the Kicker Vencill case --

A. Yes.

Q. -- that was a civil trial --

A. Yes.

Q. -- not one of these kinds of the anti-doping cases?

A. No.

Q. Aside from those two situations, how many times have you testified in an anti-doping case?

A. A lot.

Q. How many, approximately?

A. Well, I've done -- ever since USADA

came, that was a landmark because then all the cases went to CAS or small CAS or -- and I did a lot of international cases, IOC cases, Olympic cases. That all began around 19- -- about 2000.

Before that, the rules were very different. They were just kind of small hearings, and sometimes telephone hearings.

Q. Approximately, how many times have you testified in an anti-doping case?

A. 50.

Q. "50"?

A. 50.

Q. 5 -zero.

A. 5 -zero.

Q. In the entirety of your career?

A. Yeah.

Q. And with the exception of -- well, you can't really count the civil trial, because that's not an anti-doping case. And the Zach Lund case, you were testifying, actually, on USADA's behalf, right, at their request?

A. Yes.

Q. All the rest of them, you were testifying against the athlete, correct?

A. Well, I wouldn't say it was so much against the athlete; it was defending my results. Yes, so that would be against an athlete.

Q. And --

A. I ought not -- I don't know how many. Give me a while and I'll think it up and come with the right answer.

Q. Give you a while, and you will think it up and come with the right answer.

A. Well, I have detailed records, obviously, of every time I've testified. And when you ask me, I'm not expecting a question, I give you my best estimation.

Q. And you -- you're no longer with the UCLA lab, correct?

A. Correct.

Q. And you recall that there was an article in the L.A. Times about your departure?

A. Yes.

Q. Do you recall? That's a picture of you, there?

A. Yes.

Q. "Catlin is leaving drug-testing lab at UCLA," correct?

A. Yes. I think that's Michael Hiltzik's article, yes.

Q. All right. I'd like to turn your attention to this last part here, where I'll highlight it. You say, "I'm not going to be out there testifying against my old friends," right?

A. Go on, read the rest.

Q. I -- I'd be happy to, but let's get to this part first.

A. Certainly.

Q. Is that what it says?

A. Yes.

Q. That's what you said?

A. That's strictly speaking, yes.

Q. So, even after you were not bound by the WADA rules prohibiting you from testifying on behalf of an athlete, you would still not be out there testifying against your old friends, USADA; is that right?

A. Oh, I might be.

Q. Have you done it yet?

A. I just got done. I'm trying to get --

Q. But you're testifying for USADA today, right?

A. I am. That was set up a long time ago. That's one of the --

Q. I'll get to the rest of it. "But I'll be out there trying to get it right for the sport, for the agencies, for the athletes. It has to be right for everybody." Right?

A. Yes.

Q. And we would agree with that. It has to be right for everybody.

But if, for some reason, there was a problem with a test, then your previous sentence suggests that you wouldn't testify against your old friends. Is that still true?

A. Well, there's a particular context here, if I can explain it.

Mr. Hiltzik had written an article a short time before that, and it was pretty heavy against USADA and some of their -- the way things go.

And I thought he kind of was pushing me in that direction. I wanted to make it clear that I had -- I had, now, after having resigned, the freedom to pick and choose cases, and do what I would like. But I wasn't about to go out there and testify against WA- -- USADA.

Actually, well, their cases are almost all winners. Why would I? Why would I want to do that?

Q. USADA's cases are all winners.

A. I said most all are winners.

Q. All the ones you testified on behalf of USADA for were winners, right?

A. I -- that's probably true. I don't think we lost any.

Q. USADA hasn't lost a case yet, right?

A. I don't know all their cases, but I know they have won a lot.

Q. Okay. You described the quality of the work at LNDD as excellent, correct?

A. I think they did very good work.

Q. All right. I tried to write down exactly what you said. I believe you testified that the work of LNDD was excellent; is that right?

A. I think it was excellent. On the whole, in total, excellent.

Q. Did you watch the entire trial?

A. No.

Q. Except for today?

A. I was here on Monday, and I've read

newspaper articles since.

Q. Let me ask you: Do you -- is it your opinion that all the chromatograms that support the adverse analytical finding or -- excuse me -- every adverse analytical finding in this case are excellent?

A. No, I didn't say that.

Q. But nonetheless -- well, let me ask you this: Wouldn't you agree that the quality of chromatography is very important as it relates to -- to the accuracy of the testing result?

A. I would.

Q. And would you agree with me that the chromatography in at least some of the tests supporting the adverse analytical findings are not good?

A. I would agree.

Q. And --

A. Or could be better, let's say.

Q. When you look at the chromatography, and you say they are not good, or could be better -- well, let me ask: Are they not good: Yes or no?

A. Well, I think we're getting to

needing to look at an individual chromatogram. I've seen a lot. Some of them are very good. Some of them could be better.

Q. And are there others that fall into another category?

A. I'm sure there are, but I didn't really look at them.

Q. What would that other category be?

A. Well, lower than very good.

Q. Lower --

A. Mediocre.

Q. How about bad?

A. Poor.

Q. Poor?

A. Sure.

Q. Some of them were poor.

A. I mean, you know, I didn't go through and classify all of them. I was looking for the good ones.

Q. Fair enough.

I'd like to show you a chromatogram. Okay? It's marked GDC 1362.

MR. BRUNET: Could you --

MR. YOUNG: I think it would be appropriate for Counsel to tell the witness the source of this document.

MR. SUH: Hold on one second.

MR. BRUNET: Counsel, is it in our exhibits?

MR. SUH: I believe so. 1362 -- GDC 1362.

MR. BRUNET: We don't seem to have it.

MR. SUH: Oh, I'm sorry. I apologize.

MR. BARNETT: Do we have an answer to the pending question on source?

MR. SUH: We're not going to answer that question.

MR. YOUNG: May we have a ruling, please, sir?

MR. BRUNET: Well, Mr. Suh, this is an exhibit that you just filed today, and you're asking the witness to testify where -- there's no indication where that comes from.

MR. SUH: Well, at the top, it says UCLA Olympic Analytical Laboratory.

MR. YOUNG: Page 5. I think he's entitled to know where the document came from and to see the whole document.

A. And I agree with Mr. Young.

MR. SUH: Okay. Can we take just a

very brief break while --

MR. MC LAREN: This is -- this isn't in the exhibit books either. Our exhibit books end at 1344, right?

MR. BRUNET: This is a new exhibit.

MR. SUH: Can we just take one brief moment.

MR. BRUNET: Well, can you define brief? Is it 30 seconds or should I --

MR. SUH: Just 30 seconds.

MR. BRUNET: Thirty seconds, okay.

MR. YOUNG: For the record, members of the Panel, our exhibit books end at 1344 too.

MR. SUH: Mr. Chair, we have the full document package for this that supports this or are involved with this. It would have to be redacted. So what I would suggest is that if you'd give us --

MR. CAMPBELL: Mr. Suh, I just wanted to interrupt. Is it a possibility for you to give the full document package just so that USADA and Dr. Catlin can look at it, and then we don't have to actually see the rest of

it.

MR. SUH: Sure.

MR. CAMPBELL: Is that all right with you, Mr. Young?

MR. YOUNG: Yeah, that's a good

idea.

MR. SUH: Okay. Let's --

I believe it still has to be redacted because it has identifying information in it. This one is redacted.

MR. CAMPBELL: And when you say "identifying information," isn't it to people that already have it -- I mean, should have it? This is from his lab. And if this is UCLA lab, then I would just -- unless it's someone other than the Olympic movement, then, I think USADA would have a right to have it. So --

MR. SUH: So, yes. Okay. We'll just provide it.

Great. In fact, maybe what we should do is, at some point, when we take a break, we can provide it to them, and we can move on off of this, so we don't have to deal with this right now.

MR. BRUNET: How long do you

anticipate it will take you to get the document redacted and make copies?

MR. CAMPBELL: He doesn't have to redact it.

MR. SUH: We'll just provide it. It's okay. We will just provide it.

MR. BRUNET: If that's fine.

MR. SUH: We'll move on off of this

and we'll --

DR. BRUNET: Okay.

Q. Let me ask you, Dr. Catlin, when you said that some of the chromatograms in this case were poor, were some of those chromatograms -- well, let me -- let me ask you the question this way.

Would you have -- looking through the documents that support the adverse analytical finding here, would you approve of the production of the chromatography that you've seen in this case -- would you have approved it at your lab when you were head of UCLA?

A. Have I -- let me see if I'm going to understand. Have I seen any chromatograms in this study or anything in the case of --

Q. This case?

A. -- in this pile.

Q. Yes.

A. Have I seen anything there that I would not have approved in my own lab?

Q. That you would not have approved of in your own lab.

A. Yes. But, you know, I'm -- I'm not sure that we're in the right wavelength, because there are hundreds of documents here.

Q. Okay. Let me ask you, Dr. Catlin: You had said earlier that you had looked at the results in this case and, given the resulting carbon isotope ratio values, that you would have declared the results in this case adverse according to the positivity criteria at your lab; is that right?

A. No.

Q. Is that --

A. According to the WADA criteria, that we're -- if the DD is three or more, you declare it a positive case.

Q. Okay. Just for clarity's sake, when you say DD, you mean the delta/delta value.

A. Yes.

Q. Right. Okay. And when you say more

than three, we're talking about the per mil value -- the final per mil value.

A. Yes.

Q. Right. So just so I'm clear, if you would obtain the same results, leaving aside a moment whether or not they were accurate -- if you would obtain the same results, you would not declare these results as an adverse analytical finding when you were head of UCLA laboratory.

A. I don't think that's what I said. I just -- this was when Mr. Young was asking me, and I said that I would declare a sample positive according to the WADA criteria, but I would write a side letter, a comment letter, to the client saying, Oh, by the way, we have criteria that we have written, and they're out there, and those criteria, if they're applied to this case, would find it negative.

Q. Let me show you what is GDC 534.

Zoom out.

It's a UCLA Olympic Analytical Laboratory -- that's the lab that you used to be head of, right?

A. Yes.

Q. And then looking down here, it says

Don Catlin. That's your signature, correct?

A. It is.

Q. And then I'll -- let me zoom into the text, the analysis. "Diol assay using isotope ratio mass spectrometry. (See letter of June 2001 for criteria and assay details.) And the result is indeterminate. We suggest obtaining additional samples."

Right?

A. Yes.

Q. Okay. And applying the same standard to this case, can you tell me what the 5-alpha minus pregnanediol and the 5-beta minus pregnanediol values would be?

A. Well, the 5-alpha minus adiol -- let's see --

Q. Minus pregnanediol.

A. These are not different scores. These are absolute values for those three steroids. The different score would be the difference between the 5-beta, say, and the 5-beta pdiol, and the 5-alpha adiol -- the 27.7 there -- and the 5-beta pdiol, 23.3.

Q. That would be --

A. A different score.

Q. That would be minus 4.4, right?

A. Okay.

Q. And the other value would be minus .3?

A. Okay.

Q. So you're looking at a 5-beta of minus .3 and a 5-alpha of minus 4.4?

A. Right.

Q. Correct?

Okay. In other words, in a situation where you had a 5-alpha more negative than minus 3, and a 5-beta less negative than minus 3, you declared the results here indeterminate, correct?

A. Yes, and we suggested getting another sample.

Q. Right. But you did not declare them adverse; you declared them indeterminate, correct?

A. That's correct.

Q. And in fact, it says, refer to your June 21, 2001 letter for criteria and assay results.

Just be sure we get the right date here. This is Exhibit -- If you wait one

minute, I will get you the exhibit number -- GDC 536 to 537.

Do you see the date, June 21, 2001, at the top?

A. I do.

Q. And is that the letter of June 2001 for criteria and assay details?

A. I'm sorry. Is that --

Q. Is that the letter -- is that the -- what is referred to in the previous letter right here, where it says, "See letter of June 2001" --

A. It is.

Q. -- "for criteria and assay details"?

Okay. And then going back to the letter, you see that it says: "A positive report means that the delta values for both M1 and M2 are at least three standard deviation units less than the mean average."

Do you see that?

A. I do.

Q. An indeterminate -- down below, reads, "There are several criteria for a positive report. It is also possible that a sample will have one ratio and one different

score that are normal and the other ratio and the other different score will be abnormal."

Right?

A. Yes.

Q. And that would mean, right here, you would report it as indeterminate?

A. Yes.

Q. Which is what you did with this one.

A. Yes.

Q. All right. And then, once again, turning to the -- or not once again. A new exhibit, GDC 535, once again, from the UCLA Olympic Analytical Laboratory, the important thing about this document is that the date on the document is July 10th, 2006.

Do you see that?

A. Yes.

Q. And in this letter, which is reporting a result, it also says, "See letter of June 2001 for criteria and assay details." The same letter as before? Right?

A. Yes.

Q. And this was just before the 2006 Tour de France, correct? 2- -- June 2006.

A. Sure.

Q. Let's go back to the chromatogram issue, Dr. Catlin.

Do you find that there is a problem with a high sloping baseline in a chromatogram?

A. I don't consider that I'm a great expert on high sloping baselines. I know what a high -- I know what a sloping baseline is. I can ask you what degree of slope; I can ask you what you mean by "high," where does it take off? We can talk a lot about it. It's easier if you show me a sample and let me comment, although I'm not sure I will.

Q. Okay. Well, I will show you an example. But can you tell me, first of all, what causes a sloping baseline?

A. No.

Q. You don't know what causes a sloping baseline?

A. I don't wish to discuss it.

Q. Why not?

A. It's just something I don't wish to discuss.

MR. BRUNET: Dr. Catlin, you have to answer the question. You have to answer the question.

A. I told him I don't know the answer.

MR. BRUNET: If you don't know, you can tell him you don't know, but you have to answer the questions.

A. I did say I don't know.

MR. BRUNET: Well, that's not what I heard.

A. Oh, sorry. I don't know.

MR. BRUNET: Thank you. Then, we will use those words from now on, then, that you don't know.

Q. Instead of "I don't wish to discuss it."

Well, do you feel -- let me ask you this: Since you don't know, do you feel not qualified to talk about the sloping baseline? Because if you don't feel qualified, we can talk about some other issue.

A. I heard a discussion the other day, between you and one of the other people from Paris, and frankly, I couldn't understand a word of what you were talking about.

Q. Okay. That really wasn't my question to you.

A. I know.

Q. I've never really had so many first-time experiences in a trial before.

Okay. Let's try this.

Let me ask you this: If you don't

feel comfortable talking about sloping baseline, because you don't know what causes it, and you don't feel like you have enough background or knowledge to talk about it, we could talk about another issue. Would you prefer that?

A. Yeah. I mean, I don't want you -- I don't want you to get the idea that I'm an idiot about sloping baselines. I'm not. But if you want me to try to tell you in great detail how it can happen, how the background can be this, and how it can be due to that, you know, you're better off asking Professor Brenna, who knows this quite well.

It's not where I am comfortable. I don't deal with those things. The people in my lab that read the data and set the criteria for when the slope begins and ends, or decide whether the sample has to be redone or reinjected, are doing it on a day-to-day operational basis, and I'm overseeing them and watching them. But they don't bring it to me

and say, I think this or this or this.

They just proceed and get it done.

Q. Your testimony was that good chromatography is very important to you, accurate results, right?

A. Yeah, sure.

Q. Sloping baselines can affect what

was a part of good or bad chromatography, right?

A. I'll agree to that, yes.

Q. And you have said before that some of the chromatograms in this case are not very good, right?

A. I have, yes.

Q. Let me ask you this question.

Well, let me show you. I'd like to show you what's been marked LNDD 894. Do you see the circle with the arrow going down there? That is meant to try to illustrate where the sloping baseline would be.

Do you see that there is a -- well, first of all, let me ask you this question just to start off with: In your experience and/or your judgment, is this one of the good chromatograms or one of the bad chromatograms that you've seen?

A. It's one of the less good ones.

Q. Less good one. Is that a bad one -- like, let's give it a grade, you know, like, we're in school, because you are a professor. You would give people grades.

A. That's a C, out of an A, B, C system. They get worse.

Q. C's a pretty bad grade, though. C -- when you say C, that's below the -- below average, below B, below A, right?

A. Okay.

Q. How many Cs did you get when you were in school?

A. I don't know.

Q. I don't -- I don't think you got very many Cs.

MR. BRUNET: Counsel, please.

Q. Let me show you another one. How about this one? This is LNDD 1110 --

Zoom out.

MR. WEISS: For the Panel's reference, that's Exhibit 88.

MR. YOUNG: Exhibit what?

MR. WEISS: 88.

A. Yes, I see it. Can you give me a

little bit of context of what this is?

Q. It's a chromatogram.

A. Yeah.

Q. It is -- what do you mean by what -- what it is?

A. It's one of the samples? Is it the -- from Stage 17? Is it a --

Q. It's a B from 11, F3. It's the F3 fraction.

A. But B from the --

Q. It's the F3 fraction.

A. F3 fraction.

Q. From Stage 11.

MR. CAMPBELL: What number was this off of?

MR. SUH: LNDD 1110.

Q. Okay. Do you see -- looking at this chromatogram, why don't we give that one a grade.

A. C.

Q. It looks like it was done by -- the same grade as this student got, right? That one right there was the one you just looked at.

A. C minus.

Q. C minus. This is same one I showed

you before. This grade got worse.

A. Yes.

Q. Okay. How about one more time? See if we can get a D?

A. No, the same.

Q. C minus still. All right.

Let me show you this chromatogram. It's a USADA 171, Exhibit 24.

MR. YOUNG: Can the witness look at that -- can the witness look at that in his book, please.

MR. SUH: Certainly.

Q. Do you see that one?

A. Yes, I'm looking at it at this very moment now.

Q. Okay. What grade would you give

that one?

A. That's pretty good.

Q. Is that a GC/MS chromatogram or a GC IRMS chromatogram?

A. This?

Q. Yeah.

A. This is not -- we switched from -- before, you were showing me IRMS.

This looks like GC/MS.

Q. Okay. When you look at chromatograms, is the issue of good peak separation important to you?

A. Largely, yes. I mean, there are times when I can live without separation, and there are times when I cannot live. It depends on what I'm trying to do with a particular chromatogram.

This one is pretty fine.

Q. And what situations would good peak separation not matter?

A. Well, if it's way over here on the left side.

Q. Okay.

A. And you're interested in something in the middle. It's irrelevant.

Q. And just so the Panel is clear, when we talk about way over here as opposed to way over here, we're talking about where it falls in retention time in the course of --

A. Yes, sorry.

Q. All right. So, let's say, for example, turning to LNDD 991 -- can you see that? LNDD 991, Exhibit 87.

A. I can see it.

MR. YOUNG: Again, can the witness --

MR. SUH: Sure.

MR. YOUNG: -- see the hard copy.

MR. BRUNET: So that's Exhibit 87? What page, please?

MR. SUH: It's LNDD 991.

Q. That's a cleaner version.

Dr. Catlin, you can look up at the screen, because we have it now on a different kind of a projector. We can actually enlarge that area right there.

It's the -- if peak 12 and peak 14 were your --

MR. SUH: Actually, Todd, why don't you -- it's 1315. Todd, can you just go back to the big picture.

Q. (By Mr. Suh) See peak 13 and peak 15? See that?

A. I do.

Q. And then if you see in between them -- well, now, we're going to blow it up.

You see that there is a peak in between 13 and 15 now? This one right -- yeah, that one right there.

A. I see that.

Q. Okay. Is that good peak separation?

A. It looks like a shoulder on the far end of the peak, from what I can see from here.

Q. Right shoulder.

A. Right shoulder.

Q. Is that -- did that give you any cause for a concern?

A. Could you zoom out and let me see the -- wait a minute, I have it here maybe. Well, yeah, I've got it right here.

It'll -- that peak looks like it's -- good grief, 2 percent of the total? It's pretty small. And, although it's not perfect and could be better, it isn't going to totally invalidate the isotope ratio value for that peak 13, which I guess is -- well, you told me already.

Q. Isn't there a -- isn't there an "if" in your statement there somewhere? It's not going to invalidate it, if there are processes to remove the effect of the right shoulder on the peak?

A. I -- I'm not following.

Q. Well, isn't it true that -- that,

although there may be co-elution in your peaks, that if you have -- if you have software or other processes to reduce the effect of basically some bad elements in chromatography, that it's less of a cause for concern, correct?

A. Okay.

Q. And. Then, if it depends upon the technique used to remove and -- to remove the noise or the problems associated with bad chromatography, right?

A. I'm -- this is not something that we're able to do in my lab. So I'm not -- you know, this is a different system. I admire the system in the way the French did it; they ended up doing both the IRMS and the GC/MS. We can't do that. That's great.

But when you start talking about removing or erasing a peak from an IRMS trace, I don't know how that's done, because I'm -- it's simply not my instrument, and I don't know that software.

Q. Does your IRMS instrument allow you to make manual adjustments to the peak start and peak end?

A. Yes.

Q. And under what circumstances do you make those manual adjustments?

A. If we're not -- we get a -- the software shows us what they chose for the beginning and end, and sometimes we change it if we think it's incorrect.

Q. And do you do that or somebody else does that?

A. Somebody else.

Q. And that's in order to account for some of the problems you see in chromatography.

A. It's to try -- it's because the software is never a perfect solution; it always takes a human to oversee the software. And if the human is satisfied with -- the choice the software made is satisfactory, okay; but if it's not, then it gets changed. That's a characteristic of IRMS, not so much GC/MS. You don't do that sort of thing in -- in GC/MS.

Q. At your lab, when you do IRMS testing, do your technicians overwrite, and thereby delete, any data as a part of a -- an IRMS sequence?

A. You know, I'd have to go ask them. I don't think so. We do -- we're so different.

We do -- our protocol is to do injections at the beginning of the run just to warm up the instrument, and we don't save the data.

Now, whether we overwrite it or not, I don't think we do, but I couldn't really tell you.

Q. Would you -- leaving aside the warming up of the instrument, would you -- in your lab, do you acquire data as part of your IRMS sequence, and, once it's obtained, is it ever deleted for any reason when it's being run in sequence?

A. Not that I know of.

Q. If you knew that that was occurring at a laboratory, or let's say, if you knew that was occurring at your laboratory, would you be happy about it?

A. I wouldn't -- don't know. I would want to know what was going on, if I discovered it, say, in an inspection. You know, where'd the file go? Why did you delete it? Was there something wrong with it? Stuff like that.

And I don't think I would encounter that, but I really don't know; I'm not doing it on a day-to-day basis. I would leave it to

Brian or somebody else who is doing it on a day-to-day basis. And --

Q. And you --

A. -- obviously, we don't delete real data.

Q. And you haven't -- you haven't, to your knowledge, ever had that issue at UCLA, right, the deletion of what we might call real data? Data acquired -- results that are acquired during the processing of an IRMS sequence? To your knowledge, that hasn't happened when you were head of UCLA.

A. Did we ever have a data deletion, a file deleted?

Q. Did you ever have a situation in which data as part of an IRMS sequence was deleted after the data was acquired? Are you aware --

A. I don't -- I don't think so.

MR. SUH: Mr. Chair, maybe we could just take a brief break to get the file to the witness? And then I think, after a few more questions, we might be finished with this witness.

MR. BRUNET: Is 15 minutes enough?

MR. SUH: Yes.

MR. BRUNET: We'll take a 15-minute recess.

(Brief recess taken from 3:03 to 3:25 p.m.)

MR. BRUNET: Welcome back.

MR. SUH: Thank you.

MR. BRUNET: Mr. Suh, do you have

that exhibit to add?

MR. SUH: Yes. I'd like to show the same chromatogram -- same chromatogram we'd shown earlier GDC 1362.

Dr. Catlin --

MR. YOUNG: And is the entire 5-page document that we received the exhibit?

MR. SUH: We certainly can make it the exhibit. That's fine.

MR. YOUNG: Can we do it, please?

MR. BRUNET: Well, if that is the exhibit, then the Panel would like to be provided with a full copy.

MR. CAMPBELL: You had issues of redaction --

MR. SUH: It's been redacted.

MR. JACOBS: It's actually eight

pages. The only thing that's been taken off is the sample number. Otherwise...

MR. BARNETT: What we don't have is any explanation from Mr. Jacobs as to why he's redacting this document or refusing to provide the additional information.

MR. JACOBS: Let me provide it to the Panel so they can see what the big deal is.

All I've done is taken the sample number off; otherwise, it's complete. If the Panel --

MR. CAMPBELL: USADA has these documents, don't they?

MR. JACOBS: Excuse me?

MR. CAMPBELL: USADA has these documents?

MR. JACOBS: They have it now. And it's addressed to them.

MR. BARNETT: What we're candidly confused by, Mr. Campbell, is there any reason Mr. Jacobs won't just unredact it and explain where he received the document?

MR. JACOBS: If the Panel feels that there's some great need to have the sample number --

MR. CAMPBELL: Well, all I need to know is, is it a legitimate document then?

MR. JACOBS: It is.

MR. CAMPBELL: I don't see a major issue there.

MR. BARNETT: We would just --

MR. CAMPBELL: If you do, just tell me.

MR. SUH: The questions are very, very brief.

Q. Dr. Catlin, you see this chromatogram before you. This one GDC -- part of GDC 1362.

A. Yes, I do.

Q. And what is your opinion of this chromatogram, if you were to give it a grade?

A. It's pretty good.

MR. SUH: That was it. Much ado about nothing.

Q. All right.

A. It's a good chromatogram.

Q. You testified earlier that you received a lot of grief for testifying in the Zach Lund case?

A. Yes.

Q. And what was the source of that grief?

A. I don't think WADA was very happy.

Q. And would that have been Olivier Rabin?

A. I don't think he was very happy.

Q. And do you not think he was very happy because he called you or contacted you immediately before the hearing in the Zach Lund case?

A. That's not quite right. He was there, and so were other WADA people --

Q. And how --

A. -- that spoke to me.

Q. And what did they tell you about your testimony in the Zach Lund case?

A. This was before the case started,

and it was just made very clear to me that it was probably not a good idea for me to do this.

Q. And who is Olivier Rabin?

A. Olivier is the director of science, I think is his title.

Q. Scientific director of WADA, correct?

A. Okay. Yeah.

Q. And just to review the facts of the Zach Lund case, although you were called by USADA, the case involved a substance called finasteride. Do you recall that?

A. Yes.

Q. And that the hearing was just before the Torino Games.

A. Yes.

Q. And, in essence, it involved a top skeleton athlete, correct? Do you remember that?

A. I do.

Q. And that there was a debate as to whether finasteride was, in fact, a masking agent?

A. There was.

Q. And that your testimony was basically testimony that it wasn't a masking agent, right?

A. Yeah.

Q. And that that was basically going against the position that WADA was taking, because WADA had put finasteride on the banned list, correct?

A. I suppose that's okay to

characterize it that way.

Q. And your testimony in favor of the athlete in that case supporting the position that it's not a masking agent, that's what WADA was expressing displeasure with you over, correct?

A. I don't know. They never told me why they were concerned. It was just clear they were concerned.

Q. And they were concerned about your testimony, right?

A. That I would appear -- this was a case in Torino, actually, before the Court of Arbitration for Sport, and that I would appear at the request of USADA, because I know Mr. Jacobs was involved, and that they didn't think it was right. And they made -- one of them made a comment that this was about getting to the truth, as if to say, I was not going to be providing the truth.

MR. SUH: No further questions.

MR. BRUNET: Mr. Young, do you have any other questions for Dr. Catlin?

MR. YOUNG: Very briefly, thank you.

EXAMINATION

BY MR. YOUNG:

Q. You were asked, Dr. Catlin, about two different letters that your laboratory had written. And if you could go to the GDC book, and the first one is 00534.

Tell me when you're there, please, sir.

A. I'm there.

Q. The WADA technical document that sets the positivity criteria for IRMS was published by WADA in August 2004; is that correct?

A. I don't know the day, but I'm sure it is, if you're putting that in your question, sure.

Q. We can -- we can double-check. It's in Exhibit A?

A. We can -- what's the --

Q. October --

A. August?

Q. Just take a look at it. That's probably the right thing to do.

Let's just look at Exhibit 8 -- I'm sorry. It's not Exhibit 8. Exhibit 9, and I just -- I can show you.

Okay. Do you see the effective date of this document is August 13 of 2004?

A. I do.

Q. And this report was issued more than a year before that?

A. It was.

Q. Okay. Now, let me have you take a look at the other document that you were shown, and it's Exhibit GDC 00535. You got it?

A. I do.

Q. Let me spend a minute going through that with you. This is a letter that Michael Sekera of UCLA wrote to Terry Madden at USADA; is that right?

A. It is.

Q. Specimen number has been redacted, as has the UCLA code.

A. Yes.

Q. So we can't tell what the athlete's number is, but we can tell that it's an out-of-competition test, the OOC -- is that what it means?

A. Yes.

Q. And we can tell that's cycling?

A. Right.

Q. And we can tell that the date of collection is May 28th of 2006.

A. Yes.

Q. And then under the Analysis, the urine sample was analyzed for anabolic steroids. So you did that, right?

A. That's not here.

Q. Yeah, under -- just read under date received at the lab, 5-31-06. Look -- look here, Dr. Catlin. This date received at the lab, 5-31-06, and then it starts Analysis, colon.

A. Yes.

Q. Okay. So the urine sample was analyzed for anabolic steroids. So that happened, right?

A. Yeah.

Q. And it was also analyzed for masking agents.

A. Yes.

Q. And it was also analyzed for diuretics.

A. Yes.

Q. And it was also analyzed for HCG,

right?

A. Yes.

Q. All right. And then using the methods, are the different methods that you used for analyzing for the steroids and the masking agents and the diuretics and HCG, right?

A. Yes.

Q. Okay. And then the sample was also analyzed by the diol assay using method 8001?

A. Yes.

Q. And that's the IRMS method, right?

A. Yes.

Q. And then you referenced the June 21 letter.

A. Yes.

Q. And then you provide analytical data for the 5-beta, and the 5-alpha, and the pregnanediol?

A. Yes.

Q. And then you give a unit of measurement, the delta values, and then you go on down and say GC/MS Laboratory Conclusion, and GC/MS Laboratory Conclusion is different than the IRMS Laboratory Conclusion above; is that right?

A. I was -- I was with you up until the "above" part.

Q. Let me take you through.

A. GC/MS laboratory conclusion.

Q. And just read that to yourself, and I'll ask you about it.

A. I have read it to myself.

Q. Okay. So using the GC/MS as opposed to the IRMS, you found that the T/E was greater than 4?

A. Yes.

Q. And the results of the other testing methods, -- and by that, did you mean the masking agents, the diuretics and the HCG are negative?

A. Yes.

Q. Okay. And did you leave it to USADA on whether to go forward and seek disciplinary action against this athlete?

A. We always do. We provide the report, and they make the decision.

Q. Okay. And remember that the sport of cycling, the collection date is May 28th of 2006, and it's out of competition.

MR. YOUNG: Have we given Exhibit

119 to the Panel?

MR. BARNETT: Which you have the copies of.

MR. YOUNG: Okay. You took all my copies.

MR. BARNETT: Dr. Botré, can I borrow your copy?

MR. YOUNG: Thanks.

Q. All right. So what we had was cycling, out of competition, May 28th, 2006.

And, in fact, take a minute to read this, first, and then I will ask you about it.

A. (Witness complies.)

Q. Are you ready?

A. Yes.

Q. And, in fact, unless this was some incredible coincidence, again, we asked Mr. Jacobs for the sample number, and he wouldn't give it to us. But unless there was some incredible coincidence, this is a cyclist who was tested out of competition on May 28th, 2006; he's got a positive test for exogenous testosterone; and he accepts an 8-year period of ineligibility.

Would it be your understanding that

that's what happened to this July 10 letter that you wrote to USADA?

A. I don't know. I have no clue. How would I know? I just have dates, July 10, the report. And that's 2006. And then a year later was the USADA news release, and how -- tell -- I need help to connect them if they're connected.

MR. YOUNG: Okay. We can do that through someone else.

Q. You were asked during cross-examination about USADA winning all of its cases. In your opinion, on all the cases that your laboratory has reported positive, should

USADA have won those cases?

A. Yeah, of course. They're all cheaters.

Q. And if this were a case where you personally had any doubt that this was a positive sample, would you be here today?

A. This?

Q. Yeah. This is the Stage 17 sample, Mr. Landis' Stage 17 sample.

A. This is?

Q. No, no, no, no, no. I'm sorry, sorry, sorry. Start all over.

Close that book, and let's start -- let's start again.

Okay. What I'm asking you is, we talked earlier about Mr. Landis' Stage 17 sample, and your opinion that, based on both IRMS and T/E ratio, it was a positive case. Did I get that right?

A. Yes, absolutely.

Q. Okay. And if you weren't strongly convinced that it was a positive case, is there anything that could have made you come here and testify today?

A. Well, when you asked me -- or USADA asked me to testify, and I have been involved in the case, I testify. When I start into a case, I have no preconceived notion about how it's going to go. I get a pile of paper, and I start to go through it, and we begin to talk, and the case develops.

Q. And in this case, after going through the pile of paper, if you would have come to the conclusion that this wasn't a positive case, would you have raised your hand and said, Stop, I'm having nothing to do with it?

A. Sure.

MR. YOUNG: I have no further questions.

MR. BRUNET: Thank you, Mr. Young.

Any further.

MR. SUH: No, Mr. Chair.

MR. BRUNET: There's a question from the Panel.

MR. SUH: Okay.

EXAMINATION

BY MR. CAMPBELL:

Q. Hi, Dr. Catlin.

I think I remember reading somewhere where you were starting to do studies on the natural suppression of -- the suppression of the endogenous testosterone, I guess "profile," for athletes who are using steroids?

Sort of a -- and you were doing some

research on that. Could you tell me a little bit about that?

A. Sure. We're interested in how it is, when you take anabolic steroids, the mechanism by which the other endogenous steroids get suppressed, that is the levels get lower.

There are a couple of substances out there, one of them is norbolethone, which is a subject of a USADA hearing some years ago, and the other is THG, which was the designer drug that came out about them.

Both of those drugs have an extraordinary ability to suppress the underlying steroid profile. And I use that as a marker for how to find new designer steroids.

And it's something I'm very interested in because, as a clinical component -- because if you suppress the steroids that low, you're going to have to take something in order to live, because the normal steroids just get too low, and you'd sort of fade away, if you didn't take something. So I'm curious what they would take to balance it back up.

Q. And do you want to get Exhibit -- is it 30?

Now, this looks similar to -- I think you called it a "steroid profile" over a number of years for Mr. Landis. This looks similar to some others that I've seen before.

A. Yes.

Q. Could you tell -- starting from Paris in 6-16-02, up to the Paris in -- up to the time he tested positive, whether any of his steroid profiles would be something that you would consider irregular, other than the one for the positive test here?

A. I can't say that. I have looked at parts of it in detail. The parts I've looked at it in detail are the T and the epi-T and the T/E.

No, you can't make -- I can't make any conclusion about whether this represents somebody taking a designer steroid. The kind of suppression I've seen would not be consistent with this. But there are at least two, and probably maybe 22, different types of genetic people that respond differently to steroids. We know two so far. And neither one of those are -- are anything I can identify here.

What happens with the designer steroid, it's just so powerful, it just blocks out everything. And you're living on zero testosterone, so you have to take something, whether it's testosterone or norbolethone or some other steroid; otherwise, you just fade away.

Q. So, this profile wouldn't be a profile of someone who's consistently using a designer steroid -- a designer steroid?

A. I -- no, I really -- I didn't quite. I didn't want to go that far.

Q. How far do you want to go? I just want to understand it.

A. No, I can't -- no, I've seen a lot of profiles, and this one is -- is very ordinary up until the box. I've seen a lot of ordinary profiles. There may well be things as time goes along, that will enable -- that will be -- enable us to look in deeper and to see something that's disturbing, but not today.

MR. CAMPBELL: Thank you.

MR. YOUNG: May I ask a follow-up question?

MR. BRUNET: Yes, you may, Mr. Young.

MR. YOUNG: I'll stay seated.

EXAMINATION

BY MR. YOUNG:

Q. Dr. Catlin, if someone were using

small doses of testosterone, either through a gel or a patch or orally, to try to keep their T/E ratio under 4, would you expect the kind of substantial differences in the T/E profile that you'd see with norbolethone and THG and the other designer steroids?

A. Oh, no. That's why people like testosterone, because you can get away with all kinds of things.

MR. YOUNG: No further questions. Thank you.

MR. BRUNET: Thank you.

No further questions. Thank you very much, Dr. Catlin, for being here today with us.

MR. BRUNET: Can we have the next witness, please?

MR. BARNETT: It's actually Respondent's witness at this point.

MR. BRUNET: Mr. Jacobs?

MR. JACOBS: We'll call Floyd Landis at this time.

WHEREUPON,

FLOYD LANDIS,

the Respondent herein, having been first duly sworn to state the whole truth, testified on his oath as follows:

MR. LANDIS: This chair here?

MR. BRUNET: Do you need a bottle of water or are you --

MR. LANDIS: No, I'm fine. Thank you.

MR. BRUNET: Mr. Jacobs?

MR. JACOBS: Thank you.

EXAMINATION

BY MR. JACOBS:

Q. Floyd, I'd like to find out a little bit about your background.

Where did you grow up?

A. I grew up in Lancaster, Pennsylvania.

Q. Tell me a little bit about your family when you were growing up.

A. Well, my mother and father are here. I grew up in a Mennonite family. I had four sisters and a brother. I was second -- I was second oldest. And a simple family, come from hard-working roots, just a culture, Mennonite

religion, and I'm very proud of it.

Q. Tell us a little bit about what it's like to grow up in a Mennonite household.

A. I believe I'm one of the lucky few people who come from a close family like mine.

I -- I'm proud of my parents, and I had wonderful experiences as a kid, and have been taught to -- by both my father and my mother that hard work is the most rewarding part of any project; and again, I can't say enough about my parents.

Q. And how'd you get into cycling?

A. In high school -- well, like any kid, I had a bicycle when I was a kid. But high school I had a friend named Eric, and we would often -- we got mountain bikes to get -- just to get around to ride to school or between each other's house.

And the bike shop from which we bought them was called Green Mountain Cyclery. It's a -- it still exists there in Ephrata, Pennsylvania. And the guy that ran the shop was -- was promoting a race nearby, and he told us, we should, we were obviously -- sorry -- he knew we were becoming more and more interested

in doing it and spending more time on our bikes, and he said we should come by and do the race. So one weekend -- I believe it was August of that year -- that we had the race. We both went out there to do the race and competed in the category.

Q. What year was that?

A. I believe it was '91, but I could be

off by a year.

Q. And how old were you at the time?

A. I was 15.

Q. How'd you do in that race?

A. I won.

Q. So that encouraged you to continue on in cycling?

A. It's fun to win.

Q. And did you continue to bike-race through high school?

A. I did -- not a lot. Maybe a few times a year that first year. Or the first year, I probably only did one race. The following year, I raced maybe five times; the next year, ten times a year. After that, I got more into it until my senior year in high school.

I did -- my father and some friends of mine and I drove out to Michigan where they had the national championships. It was one of the first big races I did, and that was back in '93.

Q. How'd you do in that race?

A. I won.

Q. When you were racing bikes in high school, tell me a little bit how you went about your training.

A. Well, like I said, my parents

believed in hard work, and my dad liked to spend time together with me and my brother and my sisters, and so we would often have things to do after school.

And I would help my father with projects. And I also had a job at a grocery story my junior and senior year in high school, and so I would ride my bike to the store, and I would work until 9 at night, and then I would usually train at night for a few hours after that.

Q.   Like from when to when?

A.   Whenever I would get back from the store, and I couldn't wear the most comfortable

clothes to the grocery store, so I would change, and then I'd go for another ride. Sometimes I would come home at midnight, sometimes a little later; but that was really my way of finding time to train.

Q.   Did you have a big group of people that you rode with at night like that?

A.   No. Eric joined me quite -- quite a bit, but I would say a good percentage of that time, I was alone.

Q.   And all through high school, you were doing mountain bike racing, right?

A.   I was, yes. I didn't clarify that. Those were all mountain bike races up until the latter part of '97, '98.

Q. And you eventually started racing mountain bikes as a professional?

A. I did.

Q. When was that?

A. '95 was the first year I did that.

Q. And how long did you race mountain bikes as a professional?

A. '95, '96, and '97; so three years.

Q. What were some of the highlights of your mountain bike career?

A. Well, the Junior National Championships, I was -- I was very proud of at the time.

Q. How did you do on that?

A. No, that was the one we spoke about before that I won.

Q. Oh, okay.

A. The following year I did a few of the national championship series races. They had a few competitions across the country; I did a couple in the expert category, which was just the amateur category, Phili Pro. And I won a few of those and finished second and third in some of the others.

The years -- the years I raced as a pro, the first year was difficult. It was the first time I was in a category of people who were quite a bit like me. And so I think I finished the series that year somewhere around 20th for the national series.

The following years I moved up until, the last year I did it, I finished in 7th, something like that, roughly.

Q. When did you switch to road cycling?

A. I have to make sure I get this

straight in my head. '99 was the first year, I believe. So I think '98 -- I skipped a year there, where I -- where I was still racing mountain bikes, but I didn't really have big dreams, so I didn't do a whole lot of racing, so that was a year I didn't really race as much.

Q. What was the reason that you switched over to road racing?

A. Mountain biking had -- at the time I got into it with a friend, it was becoming more and more popular at the time. It was growing. And about the last few years where I was still racing my mountain bike, it was declining quite a bit. Unless you were really the Number 1 guy or the Number 2 guy in the world, you couldn't really make enough money to support yourself.

And so, at the time, I was in San Diego, and I spent a lot of the winter of '98 just training on the road and looking forward to trying to do some road races, because I really wasn't -- I was just kind of bored with mountain bike racing.

Q. When you switched over to road cycling, did you have a coach that helped you with the transition?

A. I did, he's here also. His name's Arnie Baker.

Q. And how did your training change when you switched over to road cycling?

A. Well, part of the reason that I wasn't quite as good a mountain bike racer as I was a road racer is because I trained a lot more -- more than you really need to train to race a mountain bike. The races were two or two and a half hours long, and I would often train what would be enough to race a long road race. And so it wasn't exactly the right kind of training for that. So the training didn't change a whole lot; I just happened to be quite good at road racing from the beginning, because I was prepared for it.

Q. So when you switched over to road cycling, describe what an average week of training would look like at that time?

A. Back then I was -- I thought you'd have to train more than I think you do, at this point.

That winter I rode a few months -- I

think September and October, I rode about 180 hours in September and 160 hours in October, so

like, 3,000 miles in one month and 2700 the next month. And then I took a few months off. A little easier. I was tired.

Q. When did you turn professional as a road racer?

A. That following summer. I have to think this through in my head to make sure I get it straight. '99.

I'm sorry. In the middle of '98, I turned professional. That winter before that was when I did, I think what was the most training I had ever done.

I turned professional -- I'd raced with the Mercury team up until the middle of the season I turned professional, so I could do the national championships. They have a race in Philadelphia. It's no longer the national championships, but they still have the race and that.

In order to do that, I had to get a professional license, but it didn't change much because, at the time, I was racing in the United States. And if you were a category 1, which is the amateur or the professional, you could race the same races.

Q. What years did you ride with the Mercury team?

A. Following that, '99, 2000 and 2001. Following that, I was with the Postal Service for the next three years.

Q. What were some of the highlights of your racing time at Mercury?

A. In '99, I raced mostly in the United States, and we did a race in Europe. The first race I did in Europe on the road was called the Tour de l'Avenir. It was the race that Greg LeMond won. The only American to ever win it. I had the lead in that race for a while, and I finished third in that race. I was pretty proud of that. It's a race run by the Tour de France organization, and it's for riders who are 25 -- I believe 25 and under, they have a category there.

Q. Other highlights during your Mercury time?

A. Yes. Following that, we did some more racing in Europe the next year. I did a couple more difficult races with the Tour de Suisse, and I suffered a lot there. I won a race in France called Poitou-Charentes, which

was a four-day Stage race. I spent a lot of time, again, racing in the United States, and a lot of the races in U.S. are -- are flatter races and the speed is a lot higher, and I end up in a sprint most of the time. And it's not my strong point, so I spend a lot of my time working for the riders who were -- who were there to -- for the field sprint.

I did finish. Most of the time if there was a race; for example, we would do a race called the Cascade Classic in Oregon or we would do Redlands or things like that. Generally, we had -- I was the leader on the team. We had Scott Moninger and some other guys there and I was -- we worked for them, and I still always ended up top 5 or something like that, and I usually worked for them. In the U.S., I could still get results for myself.

Q. Did you find while you were at Mercury that you were better at some certain types of races than other races?

A. Yeah. Stage racing is always much better for me. I was -- one-day races were difficult because, even in stage races, the first day or even the first two or three days,

sometimes, I'd suffer, and then I would get better as it went on.

Q. When you were riding for Mercury, did you get drug-tested at all? Do you remember?

A. I -- I don't remember any specific times, but I know that it happened, but I can't -- couldn't point out when.

Q. No positive tests while at Mercury?

A. No.

Q. While you were riding for Mercury, did you ever use testosterone?

A. No.

Q. Did you ever use any performance-enhancing substances while you were riding for Mercury?

A. No, I never have.

Q. And when did you switch from Mercury to U.S. Postal?

A. 2002 or 2004, I started on the U.S. Postal team.

Q. What was the reason that you made the change?

A. The Mercury team had a secondary sponsor which was a technology company, which

went bankrupt, and the team dissolved. So I had been offered -- my first year on the Mercury team, I'd been contacted by the Postal Service team after my result there in -- in France, but I'd already signed a contract. So when the team had problems, I contacted them and asked them if they were still interested, and I told them I was interested in racing in Europe.

And I certainly, at that point, had very little experience racing in Europe apart from that American team only in small periods of time, and I wasn't interested in trying to -- trying to go directly to a European team. I think I was afraid of that.

Q. When you went to the Postal Service team, Lance Armstrong was the team leader, right?

A. Yeah, absolutely, he was.

Q. And did they tell you what your role was going to be when you came over to that team?

A. My role was to help Lance with the Tour. When I first joined the team, they didn't make it clear whether I was going to be doing the Tour or not, and the team was focused on Lance and the Tour, and there was -- there was

never any question about that. That was fine with me. I didn't have anywhere near the experience he had had and, at that point, I was honored to do it.

Q. Did you learn a lot while you were riding with the U.S. Postal Service team?

A. Yeah, those were the first years that I spent the entire summer in Europe and did multiple stage races consecutively. Not only do you learn a lot, but it's difficult to train that hard by yourself. As long as you can handle the amount of stress, you can progress quite a bit quicker than you would training on your own.

Q.   Can you describe how your training changed once you switched over to the Postal Service team?

A.   I think that over the winter I trained a little bit less, because I did quite a bit more racing. The Mercury team, we did more one-day races, two-day races, in the U.S., and so I trained more between, but I wouldn't do nearly as many hard, hard races. So when you would race there for weeks at a time, or even the Tour de France, I rode probably half of what

I did before that, during the winter months, because I felt like I needed to recover.

Q.   Did you ride in the Tour de France every year you were with Postal?

A.   I did, yes.

Q.   What were some of your race highlights during your time with the U.S. Postal Service team?

A.   The first year, I -- we do a race before the Tour de France called the Dauphine in June. I was there to help Lance, but I was also strong, so the team protected me the whole time, and Lance won the race, and I got second. And I think it was the first indication to them that I could do the Tour and be the kind of person they needed to help Lance. And so, after that was when they told me that I was going to be doing the Tour that year.

The spring that year was reasonably good. I finished just in the top 10 in quite a few races. But again, I was there for the first time in Europe, and I had a hard time adapting to the whole lifestyle, but once June came around, and July, I was used to it.

Q. Can you describe what it was like

the first time you did that Tour de France, and would that be 2002?

A. 2002, that's correct.

The first time I did it -- well, the first time I did it is not like a lot of first-time experiences that other people had. I was on the team which was expected to defend the race, and Lance was the favorite for the Tour, so all the focus was on us. So it was more media attention and more pressure just from the outside. And so, I was nervous, and they told me it was going to be hard.

After the first few days, where there was a lot more crashes than normal because the guys in the Tour ride quite a bit closer than the other races, I mean, to win a stage in the Tour is the highlight of most people's career. So each day is like -- well, each day is as hard as any other race you'll ever do.

Q. Each day is like a stage in the Tour de France?

A. Yeah, roughly. After the first few days, once I -- once I calmed down and got relaxed and figured out how to stay in front the entire time, which is critical there, and not so

much in other races, I did okay. But again, by the end of it, I was -- was glad it was over. And I thought that I couldn't possibly imagine how somebody would win that race after having worked that hard. But the perspective you get from the back of the race is nothing like the perspective you get when somebody is helping you win the race.

Q. Tell us about some of your other race highlights during your time at the Postal Service team.

A. Well, the following year I had a mediocre year. I did the year -- I did the Tour with Lance, but at the beginning of the year, in January, I broke my hip that year. So a lot of the springtime and even up until June was -- was too much energy spent trying to rehabilitate from my hip, and I barely made it in shape so I could help Lance with the Tour.

Then I did the Vuelta; following that, the Tour de Spain came out in September, and we won that also. I helped Roberto Harris win that race. And then the following year after that, 2004, was the best year I had during the -- during my time with the Postal Service.

Again, I helped Lance win the Tour. I finished fourth in the last time trial. I finished fourth on the mountain stage. Lance won all the mountain stage so, fourth, I was happy with that.

And then I finished 21st in the tour, and then I went to the Vuelta again, and I had to leave for a few days there, and I was -- was quite proud of that season. Things went well.

Q. Tell me when you broke your hip.

A. 2003, in January.

Q. And how did that happen?

A. It was a traumatic -- I crashed and fell very hard on my right hip, and it was a pretty badly displaced fracture on the right femoral neck, and over -- well, you know the story. Over a period of years it deteriorated, but it was a very bad injury. It took us quite a few months until the muscles around it were working properly again.

Q. When you were at Postal, Lance

Armstrong won the Tour every year you were there, right?

A. Yes. He won the Tour every year for

quite a while there.

Q. Were you drug-tested at all during the years you rode for the Postal Service team?

A. Yes. But again, I can't remember specific times. I imagine -- I would -- I'd have to believe I was tested a few times for the Dauphine there, yeah. I remember that each tour I was tested at least once randomly or for whatever reason.

Q. During your time with the Postal Service team, did you ever use testosterone?

A. No.

Q. Did you ever use any performance-enhancing substances during your time with the Postal Service team?

A. No.

Q. In 2005, you switched over to the Phonak team, right?

A. Yeah. 2005, that's correct.

Q. What was the reason that you decided to switch teams?

A. Well, I didn't know if Lance was planning on racing for the year. And that year, there was a little bit of conflict with Lance, because there were some things that I wanted for the team, some equipment things and different treatment. And the team was really focused on Lance, and he deserved that, not to take away from that. But I wanted to go for a team where I would have a chance for myself, and he couldn't tell me if he was going to race the Tour again or not. I really didn't think he was going to, but I didn't want to take the risk. I wanted to go somewhere where there was a team where it wasn't completely focused on one race, and I could focus on whatever race.

Q. Did you talk to other teams other than Phonak --

A. Yeah.

Q. -- before going there?

A. I did, yes.

Q. Which teams?

A. The Quick Step team made me an offer, and the Rabobank team made me an offer, and the Phonak team. And I believe also Francaise Des Jeux, the French team.

Q. What was the reason that you decided to go to Phonak?

A. Well, just because I knew a couple of people there. I didn't have any particularly close friends on any team that would have -- that would have really made it that I had to go to that team, but I wanted to go somewhere where there were people that I could communicate, and socialize with. It's tough living in Europe, when you're -- when you're training all day and you're tired at the end of the day and there's nobody to talk to. So I wanted to be on a team where there's some people I knew.

Q. When you decided to go to Phonak, who did you know on the team already?

A. At the time, I knew Tyler Hamilton, all the Americans -- well, not all of them, but the majority of the Americans that raced in Europe, on the big teams there lived in Gerona, the city in the north of Spain, and I lived there also.

So, since he was on that team, and he had introduced me to the team management, it was really my only connection to get to know anybody with -- inside any of the teams that made me any of the offers, so I enjoyed meeting those people, and it seemed like a developing team.

Q. When did you sign with Phonak; do

you remember? Was it late 2004?

A. Yeah, it was just after the Tour.

Q. So summer of 2004?

A. Yeah.

Q. When did you actually start with the Phonak team?

A. 2005.

Q. In the time between when you signed with Phonak and when you actually joined the team, Tyler Hamilton had his positive test, right?

A. Yes, correct.

Q. And you actually testified for Tyler at one of his hearings, right?

A. Yeah, they asked me to be -- to testify as to what my experience was with Tyler, yeah.

Q. Do you remember the general substance of your testimony there?

A. They asked me about what it was like knowing him. I testified that, the times I spent with him, he was really -- I -- I -- enjoyed being around him. And I couldn't say much more than that. I mean, I hadn't spent a whole lot of time with him, but, to me, he

seemed like a sincere guy.

Q. Why was it that you had decided to testify for him at that hearing?

A. Well, he had helped me with my negotiations on the team, and I felt like it's the least I could do was to tell them what my experience was with him.

Q. And you testified under oath there, right?

A. Correct.

Q. Were you truthful in your testimony?

A. Yes, 100 percent.

Q. And Phonak has had other riders that have had positive drug tests, right?

A. Over the past few years, yes.

Q. Did you ever actually see any doping at Phonak?

A. No.

Q. Did you ever use any doping products while at Phonak?

A. No.

Q. Did you ever use testosterone while riding for Phonak?

A. No, but I will say, like, I had -- like I think most people know, I had a TUE

injection, which is a therapeutic use for some cortisone there. I don't want that lumped in with it. I mean, I assume, if I have an exemption for my hip that that was not classified as doping, but anyway, just to point that out.

Q. Okay. Thanks. And you had the TUE for cortisone during what period of time?

A. For my hip, last year, for the Tour. I have had them in the past, just for a matter of a week or two for -- either a cream or something -- but never for a dose that's necessary for a hip joint.

Q. Did Phonak have their own internal doping controls when you got there?

A. When I got there, yes. And along the period of two years, when I was there, they became more strict of trying to prevent any kind of incident.

Q. Describe what Phonak did in that regard while you were there.

A. Well, they would monitor as best they could at the races or between races at training camps, any kind of blood profiles. And we didn't have too much access or ways to manage

urine profiles of things. But I don't know the real detailed specifics about it, but I know they did do blood tests.

Q. Did you have any -- well, strike that.

Did the team talk to you about doping and doping issues while you were there?

A. Yes.

Q. What did they tell you?

A. Well, they said their policy was that it was completely unacceptable; and while they knew that each person was impossible to control, that it was their wish that nobody on the team would in any way jeopardize, first of all, themselves, or, for that matter, the entire team by doing that, and that their policy was, was that it was in no way acceptable.

Q. What was the Phonak policy, or what would happen if you had a positive drug test?

A. You were on the -- on -- the policy on the team was, you were suspended immediately if there was even a suspicion of any kind of doping, whether it was a test or anything else.

And following that, if there was a positive test, you would be fired. I mean,

that's a policy of Phonak, but it's a policy, I believe, of most teams, if not all of them.

Q. While you were at Phonak, did -- were there any riders that were actually suspended by the team that hadn't tested positive in a UCI-sanctioned drug test?

A. There were -- there was one, maybe two, but I don't remember their names. It didn't occur at the time that I can specifically remember. There were a couple of incidents, yeah.

Q. In 2005, do you remember how many times you were drug-tested in an official drug test?

A. From the team or --

Q. From the -- outside the team like by USADA or UCI?

A. No. I should know. Having looked at all those documents so much, but not as many as 2006. If I can wager a guess, maybe six.

Q. And those were all negative?

A. Yes.

Q. What were some of your race highlights in 2005?

A. 2005, I won the time trial of the

Tour de Georgia, and I finished third. I lost the lead on the mountain stage. Tour de France, I finished 9th. I was -- my big focus for the year was like 2006.

Q. Did you change your training at all leading into the 2006 season?

A. The major difference between 2005 and 2006 is, I didn't have hip surgery over the winter. And I had the entire period of time to train. I wasn't missing three months of it.

Q. And were your goals for 2000- -- the 2006 season?

A. Likewise, was -- the Tour de France was the main focus. There was other races which were placed strategically within my training schedule, which I'd hoped, if I arranged it right, I'd do well in those races, but they weren't in any way to sacrifice the focus of the Tour.

Q. What were some of your better race results leading up to the 2006 Tour de France?

A. I won the Tour of California, starting in February. And then in March, I won the Pyrenees, which is an eight-day stage race. And I won the Tour de Georgia that year, like I

had hoped I would the year before, which went better. And then I won the Tour.

Q. Were you drug-tested at the Tour of California?

A. Yes.

Q. All negative?

A. Yes.

Q. Were you drug-tested at Pyrenees?

A. Yes.

Q. Those were all negative as well?

A. Yes.

Q. Tour de Georgia? Drug-tested?

A. Yes.

Q. Negative?

A. Yes. Well, I've got to add that I don't receive results from USADA, but I assume, if there was an issue, I would have been told.

Q. Leading into the 2006 Tour de France, you mentioned you had a TUE for cortisone. Were there any other medications that you were taking leading into the Tour de France?

A. I have a prescription, for about a year and a half now, for a thyroid condition I have, so I was taking that, but it's not a

banned substance. The cortisone, I had an injection for that, but apart from that, probably took aspirin now and then, so...for the hip.

MR. CAMPBELL: Mr. Jacobs, could you identify the thyroid medication?

Q. Sure. Can you identify the thyroid medication?

A. I'll think of it.

Q. When you think of it, let us know.

A. It's a little blue pill. Does that help?

MR. CAMPBELL: Not for me.

A. All right.

I owe you one on that one.

Q. I want you to tell me, before -- leading up through the early parts of the Tour de France, up and through Stage 15, describe how the Tour went.

A. Well, I didn't -- I came there with a goal -- the team knew it -- to try to win the race, but also with the goal to race conservatively as possible, because I didn't want to have to spend my entire team controlling the race the way it had been done a few of the

years that Lance did it. It didn't always work that way, but a couple of years, they tried to control it every day. And I was on that team those years, and it was very -- well, it's risky. I mean, if the team doesn't make it, and they crack up, then you're in trouble.

So, I told them, Look, it doesn't matter if people think we're going to win or not; we have to focus on being conservative. And if that means you guys take it easy some of the days, and I have less teammates with me, then so be it. But we've got to try to play it confident, but not overdo it.

Q. And after Stage 15, what place were you in?

A. I believe I was in the lead.

Q. Do you remember what stage you took the lead in? I'm sure you do. I would.

A. I don't. 14? I took it -- well, I had the lead, and then I lost the lead, and then I regained the lead. At that time, I think it was the 14th Stage, or the 13th. I honestly don't. It all runs together.

Q. Describe what the Stage 16 layout was in the Tour.

A. Stage 16 was the hardest mountain stage of the Tour. Well, the mountain stage with the most climbs, the most vertical climbing, and I think it was five big mountains. And, ordinarily, that should be a good stage for me, but it was -- I had an awful day that day, and it was the worst day in the whole race to have a bad day because there was no place to hide. On a flat stage, you can sit in the peloton and kind of fake it, but not on that day.

Q. Tell us exactly what happened during Stage 16.

A. Well, I didn't eat properly in the beginning of the race. And it's critical that you start eating early, even before you get hungry, because if you get to the end of the race and you didn't spend the first four or five hours doing what you need to do, eating and drinking, and you run out of energy -- we call it bonking -- run out of energy at the end of the race, you can't make up for it while you're still riding your bike. I mean, you can eat some sugar, but it doesn't -- it's like your car ran out of gas.

Q. How many miles, roughly, were you

into Stage 16 when you first felt like you were bonking?

A. The bonking feeling was at the end. The problem was, I didn't feel wonderful. I mean, you have a bad day in three weeks, no matter what you do. If you sat in here for three weeks, you'd have a rough day probably. But, right from the beginning, I didn't feel well or focused on what I was doing, so that led to the bonking. That was just a result of not being focused on what I should be doing.

Q. When did you first -- how many miles into Stage 16 did you first feel like you might be in some trouble?

A. When I really knew I was in trouble was on the last climb. Sometimes you feel like that in the beginning, and you get better. I mean, there are days that -- well, most days in the Tour, you don't feel all that wonderful. But most of the time you race for a while, and you start to feel better, and then -- at least you can go.

But at the end of the stage on the last climb, I -- I knew it wasn't going to be

good. And when they started attacking, I decided that I had to ride at my own speed. I couldn't, probably have followed one or two more attacks, but that would have made the end result even worse. I've done that a number of times, not in spectacular form like that, but I've done it a few times before, and I know what it feels like, so I was -- decided that I had to just get off the mountain at whatever speed I could.

Q. And how long was that last climb?

A. I can't say 100 percent, but I think it was about between eight and ten miles.

Q. And how long was the whole stage?

A. About 110 or 115 miles.

Q. How much time did you lose to the leaders on Stage 16?

A. To the guy who won the stage?

Q. Yes.

A. I believe more than eight minutes.

Q. And what did that do in the overall classification as far as your placing?

A. I moved from 1st to 11th, I believe.

At that point in the race, the time gaps are pretty large, so you don't want to lose eight minutes, but...

Q. Can you describe, the best you can remember, what you felt like at the end of the Stage, Stage 16?

A. Well, the first thing I wanted to do was get away from the cameras. I really was -- up until that point, the race had gone really well, and I was happy with the way things were.

And when something like that happens in the middle of a race, you become -- well, it's hard to get motivated for the next day, and you know the next day is coming. And as much as you don't want to think of the next day as the race is finishing, you still think about it.

So what I wanted to do was get away from the finish of the race, even though everybody wanted to talk to me. I needed to go lay down and get some food, because I knew I would feel better in an hour or two. The motivation part, I had to work on that later, but I needed to eat some food. So I felt really bad. I was cold. You get cold. It's a strange feeling when you run out of energy like that. So I went and took a shower and ate some food, and within an hour or two, I felt a little better.

Q. What else did you do that evening after the Stage 16?

A. We're going to go through this again?

Q. Um-hm, we have to.

A. Well, I came down and I spoke to the press a little bit, because they wanted to talk to me; and frankly, I don't mind talking to them. I just wasn't in the mood quite when the race had ended. So I spoke to them a little.

And then I went immediately thereafter with the director of the team, John Lelangue, and a couple other people from management and a teammate or two -- I think Robbie Hunter, if I remember correctly, came along -- and we went and sat on a little terrace on the side of the hotel, had a beer in the sun, before too many people noticed us.

Q. And what else did you do that night before you went to bed?

A. Then -- well, that was before dinner.

That day, we were in a hotel. Ordinarily, we eat in the hotel. For some reason that day, there was a tent next to the

hotel. But they didn't have a cafeteria there. And so we walked across the parking lot and had dinner and went back to the room, and then I sat and spent some time with Azel Merckx and Robbie Hunter and a couple other teammates, Perdigiero, discussing what the best -- the best tactics were going to be for the next day, and that's when I had the infamous Jack Daniels. It helps with the tactical plan.

Q. So you came up with a plan for how to go about trying to gain some time back on Stage 17?

A. Yeah, the plan was -- well, having

been in the situation where I wasn't the guy winning the race and I was helping the guy win the race, I know what most of the peloton feels like on the last mountain stage.

And at that point on the race, the 17th Stage and the time trial were the last two chances I had to get any time back. There's a couple other flat stages, but you don't -- I mean, if you're really going to win the Tour, you don't get time back there. If you're two hours down, they'll let you have some time; but in order to win the race, if you want to get the

time back, those are the places to do it, the mountain stages and the time trials.

And so having been down by that much time at that point, we decided that, really, the only way that I was going to get into a position to win the race was to take back a big chunk of time on the mountain stage. I mean, the best scenario, if I raced that stage and then the time trial, the way it's been raced for the last ten years, is I -- if I tackled the last climb, I might get a minute and a half. And the time trial, if I'm super, I'll get another minute and a half, and that's three minutes. That will put me in 5th or 6th place, and that didn't -- I mean, that's not why I came there -- 11th or 6th is the same. I mean, I'd be --

Q. It's the same to you.

A. I'd be happy -- disappointed. But nevertheless, I decided that -- or we decided that even though you don't see it happen very often, occasionally it does work that somebody attacks in the beginning and calculates it right and makes it to the end. And we decided that -- also, at that point in the race, everybody being so tired, and it wasn't one team that was taking

control of the race immediately, they might miscalculate it, and wait too long to start chasing.

Also -- it's either that, or -- or they'll all look at each other and discuss trying to get teams to help each other. And at that point in the race -- well, at any point in the race, it's hard to get teams to work together. They just don't want to do it. And we decided that if we surprised them or did something totally -- which seemed totally irrational, that maybe they'd let me go, and maybe they'd miscalculate, believing the worst scenario is I'd get caught close to the end, and whatever -- maybe I'd end up in 18th. So, it seemed like a small risk. I was quite sure I'd get away.

I mean, at that point, like I said, the discrepancies between the guys who are capable of winning a race and the guys who are helping those teammates of theirs, they're huge. And so there was very little chance that I wasn't going to get away, if I really decided that's what I was going to do.

I didn't know if maybe one of the

guys from the top ten would actually come along and, in that case, I would have just taken him with me. I guess I would have had a couple seconds. I'd try to get away from him. But the ideal thing was to go by myself.

So I had the team ride as hard as they could on the first climb, just like they would do on the last climb, if that is what we were -- if that was the goal for the day, and it worked. I mean, if you do it that way, and you -- if you put the peloton in the position where they're in single file, unless you're in the first ten guys and you have to sprint out of every corner, you already have a 30-second deficit to make up. So in the beginning of a stage like that, they ordinarily don't -- they don't want to spend that much energy, and so I got away with as much -- well, it wasn't easy, but it worked. The plan worked.

Q. Well, we'll talk about it in a bit more detail.

By the time you went to sleep after

Stage 16, were you starting to feel better?

A. Yeah, I felt better within an hour and a half. I mean, it doesn't take long to

feel better when that happens. It does -- it doesn't happen while you're on your bike, for some reason. At least not in the half hour between when I started to feel that way, and when I finished; it wasn't possible to refuel. And again, it's like your car running out of gas. You put gas back in it, it works fine. So, the whole thing's not ruined; it just run out of gas.

Q. Did you use any testosterone the night before Stage 17?

A. No.

Q. Any banned substances that night?

A. No.

Q. What was the layout for Stage 17? Can you describe it? How long was the stage?

A. It -- I believe it was around 100 miles. I don't know --

Q. How many climbs?

A. -- exact numbers.

I believe -- well, there was a number of them, some bigger than others. Probably five or six, but they weren't -- the climbs weren't as long as the days before. They were -- it was more up and down.

Q. And describe how the stage went.

A. Well, it was a long flat section, which probably took us an hour to do, and it was predictable. On a stage like that at the end of the Tour, there's always a breakaway of guys who are very far down in the general classification, and they want to try to win a stage, and they'll attack and attack until the group gets away with nobody who's a potential winner. And then the rest of the peloton sets up and lets them go, and they're happy with that.

So a breakaway got away, and that was fine with me. My objective wasn't to win the stage, I didn't want to try to control the race the first hour of the flat race. So then, as we came to the bottom of the first climb, after that hour, the breakaway had gotten -- I don't remember the amount of time. They probably had six minutes, something like that, which it doesn't take long to get six minutes when the peloton slows down, and everybody decides they need something.

So then I had the -- the team ride up front as hard as they could, one guy after the other, until I attacked. And when you do it that way, and you split the group up into -- if you get the speed high enough, which is higher than -- really a lot higher than even the best guys can climb for a long period of time, the peloton splits into little pieces, and it's chaos, and you can't talk to each other and make a plan. And that was part of the thinking too. I didn't want the whole -- if I attacked by myself at a reasonable speed, well, they can all watch me go and they can all decide what to do.

But if we put them in a position where they first have to get together and then figure out what to do, our chances are better.

Q. And how did the stage unfold from the point after you attacked?

A. After that I rode it as if it was -- is if it was a four-hour time trial.

And I really had to do it that way in order to have any chance of working. I didn't try to get as much time as possible as fast as possible. Once I get away, the objective was just to ride at whatever speed. I can't control anything that's going on in the back. It's up to just random chance at that point.

But I thought that we had calculated that, the odds of me winning the stage were pretty good. I mean, since I was that far down, they may have let me get enough time that they just catch me within -- without too much distance in the finish line. That's the way that we would ordinarily do it.

In this case, they miscalculated, and it was really hot, and I had the advantage of, like I got all those water bottles and stayed cool, really. I poured them all over my head. And on top of that, it's hard to chase on a stage like that, because it's up and down. It's much easier to chase when you have long flat, straight roads where the guys can get a break in the peloton. But when they're windy, narrow French roads, it's not easy to chase. So they really -- well, their miscalculation was that nobody took control of the race soon enough.

Q. How big was your time gap at the point that it was the largest?

A. They let me get nine minutes.

Q. And how far was that from the finish?

A. I believe it was still about -- a little less than two hours from the finish.

Q. When did the peloton start to put time back on you, how far from the finish?

A. It started to come down very slowly.

First they kept it at 9, and then they brought it down to 8, and then around 7; and then they stayed there for a while. And then, about 30 miles from the finish, it was a small flat section, which might have been five miles long, and there they took back about two, two and a half minutes. Which is why I say that, when you have long flat roads, nine minutes on one guy, you can -- you can make that up very quickly.

And then you see it on the last climb, too. I lost some more time on the last climb. But I had to calculate it so that I could -- that I could get to the finish line in the fastest possible total amount of time. It didn't have anything to do with if I go up one mountain faster or not. Their miscalculation was they need to chase on the places where it made the most sense, and they didn't do it soon enough.

Q. And you won Stage 17?

A. I did, yeah.

Q. By how much -- how much time?

A. I think I was around five minutes ahead of the second guy.

Q. And where did that move you in the overall classification?

A. Into second, maybe third -- not first. But that was the goal.

Q. How far were you out of the lead after that stage?

A. About a minute and a half.

Q. There were three stages left after that?

A. There was a flat stage -- well, not flat, but not a mountain stage. And then there was a time trial, and then there was a final stage that goes into Paris, finishes the same place every year.

Q. And how did those last three stages go?

A. The next day I was very tired, but, fortunately, there wasn't any big mountains, and so I did my best and spent as little energy as possible, in hopes that I could make up that minute and a half in the time trial. The time

trial went well. I take pride in my time-trialing ability. I would like to have won the stage, but I had to also ride it conservatively because in a one-hour time trial, if you miscalculate it, you can lose a lot of time, or not make up a lot of time you could have otherwise made up.

So, since I was a minute and a half down, I -- and I was in the fortunate position of being second to last, I knew the times of the other guys in front of me, and the one guy was close enough behind me that I could calculate where I needed to be, and I think I did it just right.

Q. And after the time trial stage, you had regained first place?

A. Yeah, correct.

Q. And you finished the Tour in first place?

A. I did.

Q. Can you describe what it felt like to win the Tour de France?

A. It's -- it's something that's difficult to explain, because you know you should feel excited, but there's not much energy

left to be excited about it. And I was very proud of it, but I was ready to go somewhere and relax for a while.

Q. Did you use testosterone at all during the Tour de France?

A. No.

Q. Did you use any banned substances, other than the cortisone that you had a TUE for, during the Tour de France?

A. No.

Q. How about before the Tour de France?

A. No.

Q. How about since the Tour de France?

A. No.

Q. What day did the Tour finish; do you remember?

A. The 23rd of July.

Q. And when did you first find out that you had tested positive during the Tour?

A. The 26th. Don't hold me to that. I believe it's right. There should be a date on the paper.

Q. How did you find out?

A. There was a fax sent to the team headquarters, and I was with one of the -- one

of the team directors at a hotel in Holland. So they came up to my room and told me there was some kind of positive test. He didn't have any information otherwise, other than it was me, and he didn't even know what stage it was from; he didn't know anything, other than just there was an issue. And so, then there was a bit of a -- bit of a mess trying to figure out what was going on, because he didn't have the papers, and he had to call the office, and couldn't get ahold of everybody, so it appeared that it was just confusion.

Q. What was your initial reaction when you were first told that you had tested positive?

A. That was awful. I didn't have an explanation for it, and I knew, based on what

I'd seen happen in the past, that it -- the world finds out that you have a positive drug test, it's a disaster.

And at that point, having won the Tour and still being in Europe and that close to Paris, there wasn't anyplace to hide, and I know from the past that things like that are not kept confidential. And so I immediately had to tell

my wife. That was probably the hardest part. She didn't understand what was going on. And I didn't either. I didn't even have the details yet.

As I said I think I probably -- the first thing I thought was it was probably the cortisone mistake -- mixup, the TUE. And that's what I told her. I think that's what it is, but we have to wait until we get it sorted out first, because I really don't know.

Q. When did you find out that, in fact, it was not the cortisone?

A. A few hours thereafter. This happened in the morning. Sometime -- 10:00, maybe. And then in a matter of time, we had packed our stuff, and with the team director I just spoke about, John Lelangue, we were going to drive back to -- back to Paris to meet some of the team's lawyers and managers to try to figure out what they were going to do for the team.

Q. And you found out about the positive on July 26th. Do you remember when the positive test was first reported in the media?

A. Those days are difficult to

differentiate, but it was a day and a half later, so it was -- I -- I don't know for sure, if it was the 27th or the 28th. I'll have to find out on that.

Q. How did you find out that the positive -- and this was just the A test, right?

A. Yes.

Q. How did you find out that the positive A test had become public?

A. Well, I was there in the room with John Lelangue and Andy Rihs and the lawyers trying to decide what they were going to do as far as a press release goes, and they were trying to discuss whether they were going to announce it first.

And they were receiving hundreds of phone calls. I mean, the phone was ringing nonstop, and they weren't answering it, but the -- the people that John knew, that he would speak to, had more or less confirmed that it was me. He never told -- it was leaked that it was somebody from the top ten. So they went about calling all of the national federations and gotten notice from all over the United States, Cycling, from USA Cycling. So it was a pretty

basic math after that, so they had figured it out, and we couldn't say anything to the press without making some kind of statement.

And then a phone call took place between Jean-Marie Leblanc, and John Lelangue. And Jean-Marie Leblanc told him that he had read it somewhere. And so they said, Okay, we have to announce it, or we have to make a statement, so...I said, Well, that's up to you. I'm -- I'm out, but, I guess, since it's public anyway, do what you have to do.

Q. And shortly after the positive test was in the media, you held a press conference in Spain, right?

A. I did.

Q. And you were there with some Spanish lawyers?

A. I was.

Q. Did you read a statement at that press conference?

A. I did.

Q. When did you first see that statement? How long before the --

A. A matter of minutes, five minutes maybe. They handed it to me, and said, We're going to go talk to one TV camera we brought in. That's -- well, I was told in the morning, they were going to get a television crew, one camera, and say something, and I said that was fine with me.

Q. And in the -- the statement that you made, do you remember that you said that you had naturally high levels of testosterone?

A. That's what I read, yes.

Q. At the time you read that, did you know whether or not that was true?

A. No. I didn't know what was even coming in that statement.

Q. And you also, in that statement that you read, said that the testosterone found was natural and produced by your own organism. Do you remember that?

A. I do.

Q. Did you know what that meant?

A. I still don't know what that means.

Q. Why did you read the statement if you weren't sure what it meant?

A. I regret it. It was confusion at that point, and I really should not have taken the advice -- the advice of the lawyers. I

didn't -- look, I didn't have anybody telling me what to do. I've never been in a position of that kind of scrutiny, even -- even in a positive light, let alone being asked questions that I didn't have answers for. And so, I made a mistake. I regret it. And as you can see those guys aren't here today writing statements.

Q. There were also some reports shortly after that where you had talked about cortisone injections and the Jack Daniels that you had drank the night before and the possible effect of those on your drug tests?

A. Yes.

Q. Do you remember that?

A. I do.

Q. Can you explain what you were doing with those statements?

A. I was doing what I was trying to do with you earlier: explaining what happened the day before. I really didn't have an explanation as to what had caused the test results. For that matter, I didn't even have the test results. I was forced into a position where I had to speak to the public without any information whatsoever. I -- I really didn't

know whether there even was a positive test for that matter. All I had was a fax with a couple numbers on it.

Q. Your B sample was tested in early

August, right?

A. Yes.

Q. How did you find out about the results of the B test?

A. The UCI made some kind of press statement, press release. I don't know. I went -- I went to sleep.

Q. So you read about it on the Internet?

A. Yeah, it was -- it was announced to the press before we were notified, yeah.

Q. What was Phonak's reaction to the UCI's announcements that your B test had confirmed PA?

A. I was fired, which was what I expected.

Q. Do you remember roughly when that was?

A. Immediately thereafter. I mean, it would have been that day or the next day.

Q. So early August --

A. Yeah.

Q. -- 2006?

Since the positive drug test has become public, what's been the reaction of your friends and family?

A. Well, I know who my real friends are now. My family's never going to change, for sure.

Q. And what was the reaction of your fellow cycling competitors?

A. Everyone that I've spoken to is supportive of what I'm doing. I don't have anywhere near the contact I had before. I mean, I haven't been racing my bicycle since I was in the Tour of California and the Tour de Georgia, but I didn't see much of the race. So the few people I've spoken to have been supportive, but again, I've been disconnected.

Q. In early August of 2006, did you read some comments that had -- had been made in the newspaper by Greg LeMond about you?

A. I did. It was a day or two days after the B sample test results had been public.

Q. Do you remember what you read?

A. I don't remember the specifics.

Q. Generally?

A. Yeah. He came out and concluded to himself that I had done it and that I should admit it and try to clean up cycling.

Q. And how did you react to that? How did you feel about it?

A. Well, I was offended, like a lot of things that I read in the press. And most of the things I didn't read until somebody would tell me that something noteworthy had been written.

And when they said Greg LeMond had been commenting, I -- well, he'd been -- I looked up to him. I wouldn't say he was a hero, but he -- he was somebody that I really admired what he had done. Because, at that point, I had won the Tour, and I knew what it took. And the way he characterized it was accurate.

I had met him a few times in the past. I don't know him personally, but I'd shook his hand a time or two. And so, I thought that I would give him a call and talk to him about it, because he had no way of contacting me, but I got his number from -- from a friend that knows him, somebody from Colorado that I

was with at the time, and I don't remember his name.

And I gave him a call because I wanted to see if I could just somehow give him an opportunity to talk to me if he had something to say in the future.

Q. When you decided to call Greg LeMond, did you know anything about his history of accusing other Tour de France winners of taking banned substances?

A. Well, I know, because I raced with Lance, that Lance -- that he and Lance had a rough relationship. I mean, they don't get along. And he had said things about Lance in the past, and so -- well, as far as that goes, they didn't like each other.

But, I don't know Greg, and I'm willing to give people the benefit of the doubt, and so I thought it would be wise to call him.

Q. So you called him in early August?

A. Yeah. Again, the date slips my mind, but it was the day or the second day after the B sample test came back.

Q. What did you say to him?

A. I told him -- well, first of all, I

just said -- and again, the first part of the conversation, like he characterized it, is not far off. It wasn't -- it took me a little while to convince him that it was me. And rightfully so. I mean, he didn't have any reason to believe I'd be calling him.

And then I told him that I was happy to talk to him anytime and that he should keep my phone number, because, you know, I do respect what he's done. And while I'm offended by the things that he says, I really would like it if next time he has an opinion, just give me a call first and give me a warning if he's going to say something.

Q. And what was his response?

A. Well, he told me that he had -- that

he knows that Lance has doped -- I have no idea how he knows that -- and then he told me that he is sure that I did it because he sees the test results and he needs me to either come out and admit it, and that was more or less what he said in the press. But, I'm just telling you in person.

Q. What was your response to that?

A. I told him that I didn't do it. And

I told him that it wouldn't make any sense, first of all, for me to admit to something I didn't do. But that if I did admit it, and I didn't do it, I'd like him to tell me what the positive outcome of it would be.

Because, I mean -- I mean, he likes to talk in the press, apparently, and I just thought I'd talk to him and ask him what his opinion was, and how he thought I could help cycling, because I do care about cycling, and I do believe that Greg does too. And I wanted to know what he thought I could do in the position that I was in, apart from lying and saying I did it, that would help cycling.

Q. What did he tell you?

A. He told me he was -- he was certain that I did it, so, I mean, I -- that discussion didn't need to go on any longer than that.

Q. Anything else he discussed during

that conversation?

A. Yeah. Again, the events that took place in Greg's childhood. He told me about that, and I, frankly, I was a little traumatized by it. I didn't know what to say. I would -- of all the things that could happen to a person

in their life, that has to be one of the worst, and I wouldn't wish that on anybody.

And I was really completely caught off guard. I really didn't know how to react. I mean, a few times I told him I was sorry to hear it. I mean, I was glad to talk to him, but I -- I can't possibly relate to what -- what he feels like. So I don't know what help I could be, but, anyway, I told him I was sorry.

Q. And was that the end of the conversation?

A. More or less. I just said, Well, Greg, I mean, I appreciate that you took my call, Number 1. And please, if you do ever want to talk about something that I can help with, feel free to call me; you got my number.

Q. After that call, did Greg LeMond at least for some period of time stop making comments about you in the press?

A. Yeah, I didn't -- well, I didn't see anything for a matter of months, and I'd kind of forgotten about the incident.

Q. Ultimately, at some point after that, did you read something else that he had said in the press about you?

A. Yeah, late in the year -- maybe it was December; I'm not for sure -- he attended a WADA conference of some kind and made some comments to the press there about -- again, repeating what he said first, and then adding to it that I had called him and confessed to him on the telephone that I had done it.

And, well, I thought it was -- first of all, I thought it was a private conversation, and the fact that it even took place didn't need to be made public -- but the fact that he was misrepresenting it really irritated me. I thought it was respect for me to even call him in the first place.

Q. And what did you do in response to what you read?

A. I posted what you guys read the other day on the Internet, and, within a matter of a minute or two afterwards, he called me.

Q. That was the November 28th message board posting that we looked at the other day?

A. Yeah, correct.

MR. JACOBS: What exhibit number was that?

MR. YOUNG: That was Exhibit 118 for

the record.

Q. And you said, that shortly after that was posted, Greg LeMond called you?

A. Yeah, within a -- within minutes.

Q. What did he say?

A. Well, I was kind of surprised, and it was an un- -- it was a private number, and I don't often answer the phone; it's a private number, but I answered it. And he said it was Greg, and I said, Okay. Well, that wasn't response I was looking for. I didn't really want to talk to him again, and certainly not when the first phone call went the way it did, but, I said -- you know, I wanted to know how he's doing and what he wanted. And he said, well, he read what I wrote on the Internet, and that he wasn't happy about it. And I said, Okay, it probably wasn't wise, and I'm sorry that I even made it -- that I even alluded to what took place there.

And he said that he took my apologies, but he didn't care anyway, because he's writing a book about it, and I could feel free to say what I'd like.

Q. Anything else you discussed in that

conversation?

A. Well, I, first of all, tried to clarify that I did not call and admit to him on the phone that I had used testosterone, which frankly, didn't make any sense. And he said that he remembers differently, and he remembered that I had asked him for advice on what to do, since I had done it.

And I said, Greg, I don't know what to tell you, but that's not what happened. And again, I apologize for what I wrote on the Internet. It wasn't meant to be -- well, it was a reaction. I'm sorry. And I assured him that, no matter what, I would not divulge that to the public. That was not -- it just wouldn't be me to do that. I would feel awful if I did. I mean, the fact that I even knew it made me feel awful in the first place.

Q. In that conversation, did he tell you that he accepted your apology or not?

A. In the conversation after the --

Q. After the message board?

A. Yes, he did.

Q. Have you talked to Greg LeMond since then?

A. No. No, the first time I'd had any eye contact with him was here.

Q. Now, we heard a couple of days ago about the telephone call that Will Geoghegan had placed --

A. Correct.

Q. -- to Greg LeMond?

Can you tell us, when that call was placed, were you present in the room?

A. I was in a room where we had dinner with Will, yeah.

Q. And how big was that room?

A. It's pretty large. The size of this room, maybe.

Q. A hotel banquet room?

A. Yeah, we're staying in a hotel up the street from here. I could tell you, but I'd --

Q. Rather not?

A. -- rather not tell the world.

Q. Did you know before Will Geoghegan made this call that he was going to make this call?

A. No. The subject of Greg LeMond was -- well, it was the subject of that day

because he was coming the following day.

Well, unfortunately, I had to tell his story to the people around me because we expected that that was going to be part of his testimony, so I would rather not have done that, but that was -- I was left with no choice.

Q. Did you speak at all in that telephone call, the one that Will made?

A. No.

Q. Did you hear both ends of the conversation?

A. No.

Q. From what you heard, approximately how long was the call?

A. Oh, it was very short. It was -- I wasn't sitting beside Will. I was sitting at the other end of the table, and I was playing with my Blackberry, and I heard him talking. And at first I thought he was just -- he was not talking to anybody. And it went on for a very short period of time, and then it was over. And then it didn't really sink in that he had called anybody.

Q. Once you realized what had actually happened, were you disturbed by it?

A. Yeah, it's awful. I -- I -- like I said, I was traumatized having him tell me that story in the first place. There's -- there's very few things I could imagine happening to a person that would be worse than that, and I would -- to make light of that is -- I -- I can't even put words to it.

Q. At the time that you understood the

substance of the call, at that time, did you think that the publication of what Greg LeMond had told you about what happened to him in his childhood would be construed by him as some sort of a threat?

A. No. And especially because he told me on the phone, that I was welcome to divulge it, even though I assured him I wouldn't -- I was welcomed to do that, because he was -- is currently writing a book about it. I don't know what the status of that book was but, nevertheless, the two didn't cross my mind at the time.

Q. You understand that Greg LeMond called Will Geoghegan back, right?

A. That -- yes, that part -- I heard the phone ring. And he said, it's Greg LeMond,

and that's when it sunk in that he really did call him. I mean, I hadn't confirmed in my own -- it was a matter of seconds after the first call, when the second one took place. And it -- yeah, then -- then I knew there was a problem.

Q. Did you speak on that call at all?

A. No. Will didn't speak on that call either. He didn't answer the first time. And then I learned later that he called him back immediately after because, at that point, I left the room, and I went back to my room for a few minutes to try to figure out -- well, this was an entirely new situation. I didn't know what to do. I mean, I didn't want to get mad at Will, but we both left the lunch room. He went to his room, and I went to mine.

Q. So the first time Greg LeMond called back, and it went to voice mail, you were in the room; is that right?

A. I was, yes, for the first two -- yes.

Q. And then you left the room?

A. Yeah, immediately thereafter, I left.

Q. Now, Will, he was -- Will Geoghegan, he was your manager at this time, right?

A. He was, yeah.

Q. How long has he been your manager?

A. He's been helping out since this whole thing started, probably, since August.

Q. And once you found out everything about the -- the substance of those telephone calls, you actually fired Will Geoghegan; is that right?

A. Following that, I spoke with the lawyers in the morning about what to do. I didn't know what to do. After I went to my room for a few minutes and tried to figure out what was going on, then I decided I better go talk to Will. So I went up to his room, and I heard him speaking on the phone on the other end, and I guess that was the conversation he was having with Greg. And he didn't answer immediately, But he was there. I stood there. I didn't hear what he was saying, but I knew he was talking.

Then he opened the door. And he looked very disturbed. Well, I was disturbed too, but he -- he was visibly disturbed. He said that he'd made a big mistake, and he knew

there was a problem, and he didn't know what to do. And I -- well, I didn't either.

I mean, I talked to him a little bit about it just to make sure what took place was actually what I had thought had taken place. And he wanted to know what we should do; should we call Maurice and tell the lawyers? And I had said, Yeah, we probably should. But they're not back to the hotel yet, and let's wait until we see them.

Q. Since the day that Greg LeMond was in the courtroom, have you seen Will Geoghegan?

A. I saw him that night, the night of the phone call.

Q. No, the -- the following day, the day that --

A. Oh, the following -- I'm sorry.

They -- they run together. That night, we went back to the hotel, and I helped him move his stuff out, and I said goodbye to him. So I talked to him for a while that night too.

Q. And you haven't seen him since then?

A. No.

Q. I'm going to change subjects a little bit.

You, in the fall after winning the Tour, you had a hip replacement surgery, right?

A. Yeah.

Q. When was that?

A. It was in September, the end of September.

Q. Of '06?

A. Yeah.

Q. Do you have a plan to return to professional cycling, even though you had a hip replacement?

A. Yeah, absolutely. I've got a little hiccup to deal with, but that's the goal.

Q. Early on, when this whole case became public, did you read comments about the case that were made by Dick Pound, the head of WADA?

A. Yeah, I read a lot of -- of things on the Internet in the beginning of the case, and those were some of them, yes.

Q. Did you read comments that were made by Pat McQuaid, the head of the UCI, early on in this case?

A. I did.

Q. And how did you react when you read

those comments? Well, first, let me back up a little bit.

What comments do you remember reading from those two individuals?

A. I don't -- I can't quote word for word comments made by Pat McQuaid, but he concluded that I was guilty and should be eliminated from cycling. Dick Pound's quotes were a little less diplomatic.

Q. Less diplomatic, like what?

A. Well, they were just plain offensive. I don't know that it's even necessary to repeat them.

Q. Do you remember reading the comment that Dick Pound made that you were up to your eyeballs in testosterone?

A. Yes.

Q. And how did you feel about that?

A. Well, it doesn't even make any sense. I don't even know what that means.

Q. Do you remember reading a comment from Dick Pound that you had so much testosterone in your system that you could have

violated every virgin within 100 miles or
something like that, something --

A. Yeah, I specifically remember my wife's reaction to that, not so much mine. That's just not necessary. I -- I don't know that the two even are connected anyway, but nonetheless, I don't know where the evidence was.

Q. What was your wife's reaction to that?

A. She was mad. I mean, I was mad too, but, I don't know that it's even worth getting mad about. It's just -- it's nonsensical.

Q. Can you tell us how this doping charge has already affected you?

A. Well, it's consumed my entire life.

Since this thing happened, I've been dealing with the case, and it's been stressful on everybody, and everybody around me, equally; more so, the people like my family, who don't really have anything to do but just have to sit and wait and see what the outcome is.

But it's changed everything, and it's -- well, anyway, that's the subject lately.

Q. What's this doping charge done to your reputation?

A. I think that's clear.

Q. You had a pretty good reputation before this happened, right? You think?

A. I mean, I guess that would be assuming a lot. In my own mind.

Q. Fair enough.

Do you think that your reputation can ever be fully restored, even if this Panel finds that the test result is bogus?

A. No, I don't see how that could happen.

Q. Why is that?

A. Well, it'll be forever connected to me. And anytime the subject of the Tour comes up, or bicycle racing, that's the subject, and it's that part -- I can't imagine how that could change.

Q. And you've told us a number of times this afternoon that you didn't take testosterone during the Tour, you never took testosterone or any steroids or banned substances during your entire career.

And the last question I have for you is why this Arbitration Panel should believe you.

A. Well, they should believe me because

people are -- people are defined by their principles and what they -- how they make their decisions.

And, to me, bicycle racing was rewarding for the pure fact that I -- I was proud of myself when I put the work into it, and I could see results and get something out of it.

Whatever those results were, as long as I knew that I did the work, and that I'd earned what I got, that was satisfactory for me.

Obviously, it's fun to win. Some win more than others. But nevertheless, it's a matter of who I am. And it wouldn't serve any purpose for me to cheat and win the Tour, because I wouldn't be proud of it, and that's just not what the goal was from the beginning.

MR. JACOBS: Thank you. I have no further questions.

MR. BRUNET: Thank you very much, Mr. Jacobs and Mr. Landis.

We're going to suspend the hearing until Monday morning, and we'll take -- I believe Monday morning we've already defined that we would start at 8:00, 8 a.m., because of a requirement for a witness.

MR. BARNETT: I think it's Respondent has two witnesses who need to go on Monday at some point.

MR. SUH: That's right.

We have -- excuse me, we have a Dr. Meier-Augenstein, who will be leaving in the early afternoon in order to catch his flight back to Germany.

So as early as we can start is fine with us. Whatever the Panel -- whatever schedule the Panel wishes to adopt.

MR. BRUNET: So, then we would reconvene Monday morning at 8 a.m. and proceed immediately with the examination of that witness, and would the cross-examination of Mr. Landis begin after that witness?

MR. SUH: And then we have Dr. Amory, who would immediately follow Dr. Augenstein.

MR. BRUNET: I understand this is unusual to have this -- these permutations, but is USADA comfortable with this?

MR. BARNETT: Yeah, I think the parties have been cooperating on the schedule. That's fine.

MR. BRUNET: Thank you very much. So getting back to the subject, do we have a list of witnesses for Monday now or in a few minutes?

MR. SUH: Yes, it would be Dr. Augustein, Dr. Amory; and if we get through with Dr. Amory, then we would just proceed with

Mr. Landis then.

MR. BRUNET: And that would be the end of the list of witnesses for Monday?

MR. SUH: Yes, I think so.

MR. BRUNET: Thank you very much.

MR. BARNETT: The only other possibility was we were checking on the schedule of Dr. Kazlauskas, and we'll just see if that's available and manage our time accordingly, so we'll update the Panel on him.

MR. BRUNET: Thank you very much.

MR. SUH: I'd like to -- if we have time left over on Monday, I'd certainly like to continue with Mr. Landis' testimony so that we don't have so long a break.

MR. BARNETT: That's fine with us.

MR. BRUNET: Okay. Well, this meeting is adjourned.

(Recessed at 5:10 p.m.)

BEFORE THE AMERICAN ARBITRATION ASSOCIATION

North American Court Of Arbitration For Sport Panel

TRANSCRIPT OF PROCEEDINGS, May 21, 2007

UNITED STATES ANTI-DOPING AGENCY,
Claimant,
vs.
FLOYD LANDIS,
Respondent.

PURSUANT TO NOTICE, the above arbitration hearing was held at Pepperdine University, Department of Law, Malibu, California, May 21, 2007, commencing at 8:10 a.m. before Debra K. Resling, RMR, Certified Realtime Reporter and Notary Public.

AMERICAN ARBITRATION ASSOCIATION PANEL

MR. PATRICE BRUNET, 1010 De la Gauchetiere West,
#2260, Montreal, Quebec H3B 2N2, Canada. E-Mail:
Pbrunet@brunetavocats.com.

MR. RICHARD H. MC LAREN, Innovative Dispute
Resolutions, Ltd., c/o McKenzie Lake Lawyers, LLP, 300
Dundas Street, London, Ontario N6B 1T6, Canada.
E-mail: Mclaren@mckenzielake.com.

MR. CHRISTOPHER L. CAMPBELL, Chapman & Intrieri, 2236
Mariner Square Drive, Suite 300, Alameda, CA 94501,
United States.
E-mail: Ccampbell@chapmanandintrieri.com.

APPEARANCES

MR. RICHARD R. YOUNG, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MR. DANIEL J. DUNN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 1700 Lincoln Street, Suite 4100, Denver, Colorado 80203-4541, (303)866-0365, appeared on behalf of the United States Anti-Doping Agency.

MR. MATTHEW S. BARNETT, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MS. JENNIFER SLOAN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MR. MAURICE M. SUH, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333 South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. DANIEL L. WEISS, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333 South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. HOWARD L. JACOBS, Attorney at Law, from the Law Offices of Howard L. Jacobs, 4210 Lewis Road, Suite 5, Agoura Hills, California 91301, (818)442-0408, appeared on behalf of Floyd Landis.

MR. PAUL SCOTT, Chief Operating Officer, 2160 Century Park East, #2108, (310)203-0354, Los Angeles, California 90067, Agency for Cycling Ethics.

Participants behind Counsel Table: Caroline Hatton, Larry Bowers, James Padilla; Floyd Landis, Amber Landis, Mr. and Mrs. Paul Landis, Arnie Baker, Simon Davis, Brent Kay, Todd Thompson.

Panel Participants: Dr. Francesco Botré, Rosalie Brunet.

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(Commencing Monday, May 21, 2007 at 8:10 a.m.)

MR. BRUNET: Good morning, everyone. Welcome back. This is Day 7 of the USADA and Floyd Landis arbitration hearing.
We'll start with appearances, please.

MR. SUH: Morning, Mr. Chair.

Maurice Suh, Gibson, Dunn and Crutcher, appearing on behalf of Floyd Landis, who is present with us here in the court today. Sitting here at counsel table are Howard Jacobs, Dan Weiss, and Paul Scott.

MR. YOUNG: Good morning. For USADA, Richard Young, Holme Roberts and Owen, with Matt Barnett and Jenny Sloan.

MR. BRUNET: Thank you.

The balance of time remaining at the end of Saturday, May 19th, was 6.9 hours for Landis and 13.5 hours for USADA.

May we have the first witness, please.

MR. SUH: Yes, Mr. Chair. We would call Dr. Wolfram Meier-Augenstein.

MR. BRUNET: Please come to the front here, the chair closer to the binders, please. And before sitting down, stay up and be sworn, please.

WHEREUPON,

WOLFRAM MEIER-AUGENSTEIN, Ph.D.,

the witness herein, having been first duly sworn to state the whole truth, testified on his oath as follows:

MR. BRUNET: If you want to take the other chair, the chair closer to the binders, please.

THE WITNESS: Fine.

MR. BRUNET: Thank you.

EXAMINATION

BY MR. SUH:

Q. Good morning, Dr. Meier-Augenstein.

A. Good morning.

Q. Can you tell us, are you employed?

A. Yes, I am at the Queen's University of Belfast.

Q. And what position do you hold at the Queen's University in Belfast?

A. As an educator, normally that would be senior lecturer, which is equivalent to associate professor in the U.S. university.

Q. And what is the subject of your expertise?

A. I would call myself an analytical chemist. And my particular expertise is chromatography and stabilizer isotope ratio mass spectrometry.

THE REPORTER: Could you speak a little closer to the microphone? It's on? Is it on?

THE WITNESS: Yeah. Is that better?

THE REPORTER: Thank you.

Q. (By Mr. Suh) And can you tell us a little bit about the facility at the Queen's University in Belfast?

A. Our facility, I think it's fair to say, is probably the largest one in the UK with regards to numbers of isotope ratio mass spectrometers, also with regards to presentation of all the manufacturers -- all the manufacturers, that is, with the exception Mass Spec Solutions, and there's another company --

THE REPORTER: What is with the exception of?

A. Mass Spec Solutions. And there's another company that now is trying to sell

isotope ratio mass spectrometers, new instruments. So, we don't have equipment from them, but we have the equipment from Thermal Finnegan, GVI, and Analytical Precision, and Europa. It used to be Europa, which is now -- no longer in existence, but there's another company that basically builds instruments on that platform, and that's called Zircon.

Q. How many IRMS instruments do you have at your facility?

A. 14.

Q. And are you familiar with the use of those IRMS instruments?

A. Not all of them, I have to admit. The GVI instruments are the instruments I'm more particularly familiar with. I use them very occasionally, but I don't know them as intimately as I would know a Europa system, an Analytical Precision System or a Thermal Finnegan system.

Q. Are you familiar with the principles of carbon isotope ratio testing?

A. Yes.

Q. And can you tell us how you are familiar with the principles of carbon isotope ratio testing?

A. That's basically what I have been doing since 19- -- let me just think -- since 1992. I have been basically involved in the development of methods and instrumentation for carbon-13 isotope testing since then.

Q. And are you familiar as part of your work with the principles surrounding chromatography?

A. Yes, actually longer than I have been with isotope ratio mass spectrometry.

Q. Can you tell us a little bit about your educational background?

A. I don't know how that translates into the American school system. I went to primary school. From primary school to grammar school, and from grammar school to university. My degree is at the University of Heidelberg. And from there on, I moved to the University of Stellenbosch in South Africa as a post doc where I worked with Professor Ben Burger. He's a, let's say a pupil, if you like, of Professor Kurt Grob, who is --

THE REPORTER: Could you start back with Professor Ben Burger, please?

A. Professor Ben Burger -- Ben is his first Christian name, and Burger is his surname. And he used to be, yeah, a protege, a pupil, if you want, of Professor Kurt Grob from Switzerland, who, in essence, wrote all of the basic textbooks on gas chromatography and who developed a lot of the techniques, like the split/less injector which we utilize still today.

And after that, I basically, started, if you would like, as to call it, to work properly in employment, first, actually, in the hospital, where we used carbon-13 isotope mass spectrometry in the continuous flow setting and gas chromatography C13 to look at inborn metabolism of children. And, yeah, I mean, that's all, basically, my education, and then, from there on, it's hands-on on-the-job.

Q. Do you have a Ph.D.?

A. Yes, I do have a Ph.D.

Q. From which institution do you hold a Ph.D.?

A. Institute of Organic Chemistry, the University of Heidelberg, Germany.

Q. Can you just briefly describe, and I

mean in summary form, your research contracts and grants?

A. Currently, I'm holding research grants from the EPSRC, which is one of the research companies in the UK, where you can apply for research funding for, which is, in essence, government funding. That research -- that research grant deals with isotopic, identification of drugs, narcotic drugs, for the purpose of forensic applications to find out if drugs found on a suspect can be matched to drugs found, whatever in his car or in his -- or in his home. Another -- tied to that is a university stewardship.

I'm also holding a grant from an industrial sponsor from Procter & Gamble who want to use isotope ratio mass spectrometry techniques to dictate knock-offs of their products. I think knock-offs actually would be the technical term, i.e. product infringement; i.e., infringement of their products with a view to basically protect their brand, but also protect the consumer.

Q. And do you do any work with WADA?

A. No, I don't.

Q. And have you done any work with WADA?

A. It depends what your interpretation is if I have done work. I have been invited to two workshops. One invitation I couldn't accept, because I did not have the time to attend that workshop.

And the second invitation was a workshop in Cologne. It was in 2004. And again, depending on your interpretation, I have been referee, external reviewer, on the grant application by Dr. Tom Brenna for the grants he applied for from USADA, and I reviewed that one.

Q. And do you have -- do you do any

forensic case work?

A. Yes, I do.

Q. And are you part of any organizations in conjunction with forensic case work?

A. I'm -- I'm part -- I'm a member of the Steven Group of the forensic isotope ratio mass spectrometry network, which is, at the moment, a home-office-funded group that looks into the harmonization of procedures of protocols for the application of isotope ratio

mass spectrometry in a forensic context.

So what we do at the moment, we're actually trying to create, from scratch, the rules on which -- on which ISO 17025 accreditation will be based. And we have to have accredited -- we have to be ready to expose this grant at the lab in the UK on that basis, to test for explosives -- to basically analyze explosives with the isotope ratio mass spectrometer.

Q. Do you have a membership in any professional bodies?

A. I'm a member of the World Society of Chemistry. I'm a member of the British Mass Spectrometry Society, and -- no, Alexander von Humboldt Association is not what you would call a professional society, so I wouldn't call it that.

Q. Let me ask you a question that might kick this off. What is your opinion about the relationship between good chromatography and accurate results?

A. It's absolutely essential.

Q. Can you tell us what are some of the bedrocks -- bedrock principles of good

chromatography?

A. That's the basic -- the basic fundamental one is well-resolved peaks. You need to have baseline resolution in your peaks to get -- to get actual -- to emphasize results.

Q. What are -- tell me a little bit about well-separated peaks. What are well-separated peaks?

A. Principally, the peaks are baseline-separated peaks. The peak -- the two peaks in question, the preceding peak, the peak that comes out of the cone first, actually, the peak tail returns to baseline before the next peak starts.

Q. And what is the characterization of peak envelope?

A. I wouldn't -- in essence again, interference, an interference-free peak, i.e., a peak doesn't that show any shoulders, a peak that doesn't show excessive tailing or excessive fronting, if you like.

Q. Have you read any papers that support your theory that well-separated peaks, the absence of asymmetry, good baseline separation, all these principles, have you read

any papers that support this theory?

A. The short answer would be yes. Counting them, I actually couldn't, but, yeah, it's a whole body of papers in the literature going back, basically, to the early days of gas chromatography, isotopic ratio mass spectrometry that emphasize and reemphasize over and over again how important good separation -- well, baseline-separated peaks are.

Q. Are there problems that are encountered -- and by the way, looking up at the screen, I know it's small, but are these some of the articles that you have reviewed that support this principle?

A. I actually -- I know all these articles; some of them, actually, I've written myself.

Q. Now, are there problems that are encountered when peaks are close together or slightly overlapping or of a small signal or appear on curved baselines?

A. Yes, because, in essence, you are not reporting the isotopic composition of one peak and one compound only, but a composite value that is comprised of the peak and you are

interested in at whatever overlaps with that peak.

Q. And why does it matter whether or not you accurately report the isotopic values?

A. Because you can't -- you can't determine isotopic composition of the peak just from partial examination of the peak. That's called a idiosyncrasy to gas chromatography isotope ratio mass spectrometry. It's called the isotopic chromatographic effect.

If a compound goes through the column, there will be -- there will be a separation in space between the carbon-13 rich part of that compound, and the carbon-12 rich part of the compound, and for reasons of -- I don't want to bore you with too much detail -- but for reasons of how a compound interacts with a stationary base in the GC column, it is actually the carbon-13 original part that elutes first, which is sort of counterintuitive.

So if you would examine only the first half of the peak, you would get a value, but if you overestimate the carbon-13 composition because you haven't actually included the carbon 13 poor, and hence carbon 12 rich part of the peak and vice versa.

Q. Okay.

A. And the moment you have overlap, you basically -- you are looking at a composite depending -- yeah, there's a nice example. So that would be an example of well-separated peaks, if you look at the screen. These peaks are based on separation and if --

Q. Okay. And before we go on, let me just ask you. Do you know who Rodrigo Aguilera is?

A. I know the person by name, but not personally. I never had the pleasure of meeting him.

Q. And have you examined Rodrigo Aguilera's conclusions about the application of some of these principles, the IRMS testing and doping control?

A. Yes, and he comes to the same conclusion: that you require good strict adherence to quality control systems as well as good chromatography.

Q. All right. Let's go --

MR. YOUNG: Can we have a reference to where this comes from, please?

MR. SUH: Yes, in fact, we will give

you a copy of this.

THE WITNESS: That's the 2001 paper.

MR. YOUNG: Could we get that this morning?

MR. WEISS: It's Exhibit 40, USADA 1221.

MR. YOUNG: Okay. Thank you.

Q. (By Mr. Suh) If we had a diagram of what a good peak resolution looks like, why don't you take a look at a simple diagram of what poor peak resolution looks like.

A. That's the peaks, that's just what I'm trying to describe. You have two peaks, and they indicate -- what's indicated there, that from left to right, on peak -- on the green peak, the left flank is carbon-13 rich, the right flank is carbon-12 rich, and on the red peak again, the left flank is carbon-13 rich, and the right flank is carbon-12 rich.

And in the overlap area, you can also see that the carbon-12-dominant part of the green peak tails into the part, into the red peak and likewise, part of the carbon 13, the front of the red peak is now overlapping with

the peak on the left, which means, if you would -- if you would integrate these peaks from point to point, start left to the point where they meet, and then again the second peak from where they meet to the point to the right, you would get a result that would show the left peak -- if you wouldn't know what the true values were -- the left peak is actually an artificial carbon 13, which is richer than it should be. The carbon 13 would be more positive, whereas the red peak is poorer in carbon 13 than it actually should be. You get a wrong answer in both cases, that the green will be more positive, the red peak will be more negative.

Q. Okay. Let's look at just one example of a good versus poor peak resolution. Just so we can see it.

All right. See the top left-hand corner there? There's a chromatogram?

A. Yes, that is taken from a paper by Aguilera, published as, Communications of Mass Spectrometry.

Q. And then there's a chromatogram on the right-hand side. Where is that taken from?

A. That is -- they have two fractions of the Respondent's sample in the A Sample analysis. And they both show, in essence, the same fraction, either the peaks in question are etio and andro, and you can see without any difficulty the separation in the Aguilera paper is far superior. That is actually better based on separated as compared to the separation you see on the right.

Q. Do trailing peaks cause inaccurate results?

A. Can you define what you mean by "trailing peaks"?

Q. Well, maybe you can define for me what trailing peaks are.

A. Tailing peaks.

Q. Excuse me. Tailing peaks.

A. Tailing peaks.

Q. Tailing peaks.

A. Yeah, you see, it is basically --

Q. That should be tailing, by the way up there.

A. A peak that is basically not symmetrical, that is basically -- has a, let's say, a steep flank ion on the left, and the

tail -- it's like a ski champion hill, if you will, on the right.

Q. Maybe we can turn to the next slide.

Now, what are these chromatographs?

A. That is taken from a paper that was published in the Journal of High Resolution Chromatography, and it shows basically what influence poor chromatography can have. And it's not even a question of why the chromatography is poor. If you look at the chromatograms from top to bottom, you see the same samples analyzed as seen by GC/MS system and underneath you see exactly the same sample as analyzed by the GC IRMS system.

I have to point out that that has not been done on two different instruments. That has been done on one identical system, but sets it apart from any other system you might have heard about in the past, it's a system that I developed in 1993, together with Thermal Finnegan, it's a system that combines a mass spectrometer and an isotope ratio mass spectrometer into one unit, so what comes out of the mass chromatograph goes to both instruments.

So you have completely identical

chromatographic conditions. You get exactly -- you get two pieces of information. You get compound identity, and you get the isotope ratio information from the compound.

So there's no ambiguity that you are comparing the results from one instrument that is completely separate to another which is always fraught with difficulty.

Q. Dr. Meier- --

MR. YOUNG: Excuse me. If we're going to have slides from papers, could we see the papers, please?

MR. SUH: This one particular paper,

we had a little problem with our printer this morning. We'll produce it at a break. We just -- our printer broke down this morning.

MR. YOUNG: And I don't mean to be interrupting, but it would be, I think, fairer that whenever they're putting up slides from studies that they either give us the exhibit number or they give us the study.

MR. BRUNET: That's fair enough.

MR. SUH: We're happy to do it. We just had technical difficulty this morning.

MR. BRUNET: Can you do it during

the break?

MR. SUH: Yes, we will.

Before we move on, I think, it's important -- Todd, if you could switch over to this screen, I just want to make sure that --

MR. MC LAREN: Sorry to interrupt, but do you want the paper now?

MR. YOUNG: I'm going to need it before cross-examination. And if he's going to ask any more questions about it, yes, I would like it now.

MR. BRUNET: Well, I would assume that we would break before the cross-examination. Is that acceptable to you, Mr. Young?

MR. YOUNG: That's fine, if he's not

going to ask any more questions about it.

Q. (By Mr. Suh) All right. Just so that everyone understands why there are two chromatograms in this process, I'm just going to draw a very simple diagram.

All right. Now, as part of the testing under the IRMS process, is there a GC/MS component and a GC IRMS component?

A. In which context?

Q. In the context of -- well, let me ask --

A. Are you referring to this specific case?

Q. In this specific case. Right.

A. Yes. The lab that has analyzed the Respondent's sample used a separate data -- had two separate entities and two separate instruments.

Q. Right. Now, just to be perfectly clear, so that everyone understands, this is all part of the GC IRMS testing process, right?

A. Yes.

Q. Okay. This is not referring to the T/E test at all, right? It has nothing to do with that?

A. No. That is, in essence, your anchor on which you base the peak identification in the GC IRMS if you don't have a way of simultaneously acquiring this information.

Q. Okay. Peak identification.

In other words, it's a process by which first you have to identify what your peaks are. Right?

A. Yeah.

Q. This step. And then there's the second process, which you actually get to quantify the delta values.

A. Yes. I mean, the simple reason for that is that an IRMS system does not identify a compound. It can't.

Q. Oh, right.

A. Because what you do, you actually omitted a vital piece between the GC and the IRMS; it's a combustion interface. It is -- what you're essentially analyzing is carbon dioxide, which you generate from the peaks that come out of the GC column. They are completely combusted, so you lose any identifying feature other than the isotopic composition.

So if you go -- since IRMS does not allow you to identify which peak, you actually are combusting it and looking at it at the moment, you need to have supplementary information, if you like. One way of doing that is by potentially having the comparison, or better still, a retention time comparison, which means you have to analyze the sample in parallel on the GC/MS system that allows you to actually associate compound identifying information with

the retention time of the peak, such as a mass spectrometer.

Q. Let's take this one step at a time, just so everybody is clear. This step is the step that you use to actually identify what you are looking at.

A. Yes, so you know which peak -- where it sends which compound.

Q. And you do that because this step right here does not tell you what you are looking at.

A. No, it does not.

Q. However, this step -- this first step -- although it tells you what it is, it cannot quantify the isotope value, right?

A. No, it's physically impossible for another mass spectrometer to give you the isotope data at that level and in the same position that would be required.

Q. Okay. So in order to accurately do it, to quantify the isotope value, you need --

A. This instrument.

Q. -- this instrument.

A. Yes.

Q. So you need this instrument in

tandem --

A. Yes.

Q. -- one to another? And this instrument right here -- this one does not tell you what the peaks are?

A. No, it does not.

Q. And how is it that you relate the peaks that you have identified at this stage to the peaks at this stage?

A. You use -- you use a retention comparison because that is usually a bit difficult because, at the best of times, no two GCs and no two identical columns, even if they're the same manufacturer, will give you identical retention times. You go for what's called relative retention times. You add an internal standard to which you relate the retention time of everything else.

Q. Okay. Now, is that -- did you have a chance to review the transcript of Dr. Brenna when he testified here?

A. Yes, on my flight.

Q. And was one of the things that he was talking about when it comes to relative retention time, was that he was -- his point was that this phase, right here --

A. Relies on the phase on the left.

Q. Right -- relies on the phase, and that the retention times allowed you to properly identify which peaks you were looking at.

A. The relative retention times in tandem with the mass spec identification, i.e., the mass spectron that you recall on the GC/MS, yes, which is perfectly all right.

Q. The method is perfectly all right.

A. Yes.

Q. You are not saying that was what was done here was perfectly all right?

A. No, no, no, no. His statement that you need to anchor your peaks in the GC IRMS on the GC/MS.

Q. And let me ask you this: This is previewing what you are going to testify about, but in this case, were the peaks properly identified by relative retention time according to the WADA technical document?

A. No.

Q. We'll get to the detail of this in a minute.

Why don't we turn to the next slide.

What are these two chromatograms?

MR. YOUNG: Excuse me. If we're

back into another document that we haven't seen, we would like to see a copy of it.

MR. SUH: It's apparently the same paper which we will provide.

THE WITNESS: No, it's not. That's from a paper taken, published by Rautenschlein and Brand. This is more -- this is -- this is -- this is to illustrate a point that you can't -- this is how we rely on one piece of information.

Q. (By Mr. Suh) Without relying on the paper, why don't you just describe the point --

A. If you look at the chromatograms, it's a --

MR. BRUNET: Well, we're not looking at the chromatogram now. Counsel for USADA is asking for a copy of that paper. Is that possible?

MR. SUH: Yeah.

We are subject to the same technical difficulty on this one also.

MR. YOUNG: Well, would it make any sense, if we're going to be going through a

bunch of papers and a slide show that we haven't been produced -- I mean, they were able to produce slides. Should we take a break so we could see what they're going to be talking about?

MR. SUH: Okay.

MR. BRUNET: Let's take a 15-minute break.

MR. MC LAREN: And during that break, could you get all your papers?

MR. SUH: Yeah. We are trying to pull them tomorrow.

MR. MC LAREN: Pepperdine should be able to help you print.

MR. SUH: Their copier was down as well.

MR. BRUNET: Well, now, the office hours are starting. They will have something open.

(Brief recess taken from 8:37 to 9:01 a.m.)

MR. BRUNET: Welcome back.

Have counsel for USADA been provided --

MR. SUH: Yes, we have either

identified the exhibit numbers, which some of them are already exhibits, and the ones that have not been, we have given them copies.

MR. BRUNET: Please continue.

Q. (By Mr. Suh) Dr. Meier-Augenstein --

MR. BRUNET: Mr. Suh.

MR. BARNETT: Just for

clarification, Mr. Suh, what were the two exhibit numbers that you referenced for our exhibits?

MR. SUH: Exhibit 1304, GDC 1297 is the Brenna article.

MR. SCOTT: 1240, 1241, and Exhibit 1245.

MR. YOUNG: Which articles are those?

MR. SCOTT: One is an article by Dr. Shackleton, and one is Dr. Aguilera.

MR. YOUNG. Thank you.

Q. Looking at this slide -- before we skipped over this, why did you indicate these areas with the circles?

A. Because it basically demonstrates that if you have the opportunity to look at your

sample, in essence, in two-dimensional informations at the same time without any ambiguity of running it on two different instruments, you have much more control -- let's say, power of observation, if you want to call it like that, what the various traces for the various chromatograms give in terms of information.

So if you look at the top chromatogram, this is actually the mass spec total ion chromatogram which shows you, basically, all the compounds that are present in that sample. And if you compare that to the bottom chromatogram, you can see that some of the sample peaks are actually not as pronounced as they are in the top chromatogram, so something has happened to them. And there is one sample peak that is encircled in red, that is actually no longer visible in the chromatogram. And unless you look very, very closely and you might want to see, by wishful thinking, sort of a bump --

Q. That's this one right here?

A. Yes. And so that's still present in the mass spec chromatogram.

If you go to the bottom, the bottom trace, the very bottom trace, you can see where this peak should be. It's obviously not strong enough to be picked up by the 44 trace, and it's, likewise, actually, not strong enough to be picked up by the two-over-one trace, because two-over-one trace is actually a very nice diagnostic tool for whatever -- troubleshoot chromatograms, if you think there's a problem, but it's not an absolute 100 percent field of -- I don't know how to put that. You can't rely on it exclusively. You have to do it in context of all the other information that's available.

So if your peak happens to have a

similar composition to what your background is, then it actually would not show an approval of two-over-one, because even if you have a very good expectation it should show, and that you can see that, for instance, the circle that's orange -- at the very beginning of the chromatogram, there is a small peak, and even that, that's not producing a major detection.

Likewise in the middle of the chromatogram, there are three peaks that should be there, three compounds; and you hardly see

any deflection in the two-over-one peaks. Here, the peaks are actually still visible in the 44 trace. So you can't conclude -- I don't see anything in the two-over-one trace that is not there; there is no peak.

And conversely, if you go to the next slide, the opposite is true. Because, here, there is absolutely nothing can be seen in the 44 trace, and there is a huge deflection in the two-over-one. So it cuts both ways. It's a nice diagnostic tool, but it's not a be-all IRMS.

Q. Dr. Augenstein, let me go ahead and --

MR. BRUNET: I think -- do you have a question?

MR. YOUNG: The question is we're

popping up a new slide. Where do they come from?

MR. SUH: This slide it's from GDC 1313. We have already provided it to the other side.

MR. YOUNG: And which study is this?

A. This is Rautenschlein Habfast & Brand.

MR. BRUNET: Mr. Suh, does this slide come from GDC 1313?

MR. SUH: Yes, Mr. Chair, it does.

Page 147 and 148.

Q. (By Mr. Suh) Dr. Meier-Augenstein --

MR. BRUNET: One moment, please.

MR. SUH: Perhaps I can give you a copy which has a page number.

MR. CAMPBELL: Are you still worried about your time?

MR. YOUNG: Could we have one too?

This is the GDC document you are talking about?

MR. SCOTT: Yes.

MR. BRUNET: Mr. Suh, I'm looking at GDC 1313, and that article is entitled, High Precision Gas Chromatography Combustion and Isotope Ratio. And this document you just provided me with is High Precision Measurement of C-13, C-12. It's not the same article.

MR. SUH: All right. Okay.

It looks like we have misnumbered it. We will renumber it at a break. We will give this copy over right now, so you have it.

MR. BRUNET: So this slide we're

looking at now is on this document that I've just referred to?

MR. SUH: Yes.

MR. BRUNET: And which page is that on?

MR. SCOTT: The very last page, last two pages.

On the pages in the article, it is Page 147 and 148, the very last two pages of the article.

MR. BRUNET: The pages aren't numbered.

MR. SCOTT: Correct.

MR. SUH: The bottom one on the previous page.

MR. BRUNET: So the right graph is on the last page, but the left graph is where?

MR. SCOTT: It's on the previous page.

MR. BRUNET: Thank you.

Q. (By Mr. Suh) Can you explain to us once again, Dr. Meier-Augenstein, why it is significant -- well, first of all, before I ask you this question. This top graph, this is the mass 44/45 trace?

A. Yes.

Q. And that's the mass 44/45 trace that was referred to by Dr. Brenna as being the reason why there should be no concern over disappearing or co-eluting peaks?

A. I believe so.

Q. All right. And can you explain to us why this particular paper shows that the mass 44 or mass 45 trace doesn't always provide you with that certainty?

A. From that, actually -- this actually shows the opposite. This shows you a case where the two-over-one trace or the 45-over-44 trace actually provides more information than is contained in the chromatogram.

If you see -- do you see this deflection?

Q. Yes.

A. And you see, basically, no matching peak in the chromatogram. Unless you really explode the scale to such a degree that you might actually just about see in the right-hand picture that there is a tiny bit.

But if you go back to the previous slide, the previous one, there you have exactly the opposite situation. You have basically information in the chromatogram that there are peaks, and you have no matching deflection in the two-over-one trace.

Q. So sometimes it shows up in the 44/45 trace, and sometimes it doesn't?

A. Sometimes it doesn't.

Q. Okay. Let's go to the next slide. Let me ask you a question: Does background subtraction, as performed by LNDD, have an impact or a corrective impact on the delta 13-carbon values?

A. Yes, it can have. If you look at the -- if you look at the top left in conjunction with the schematic on the bottom left, you can see that is basically -- the bottom left shows you very, very schematically two peaks just about baseline separated, that the baseline as such, is stable, and the correction basically -- just as indicated in the blue and the magenta square or that square right angle shows you what the baseline correction takes away, so that's fine.

You can even have an extreme case, like shown in the middle, where the baseline

slopes. And as long as the peaks are well separated or sufficiently separated -- again, here is the piece on the screen shows you what the baseline correction takes away.

If you then go into the very right example, this is a case where you have peak overlap. And what happens if the baseline correction connects -- because, you see, it can't extrapolate across. There is something that's basically above the baseline, where the two peaks join. So what happens is that the baseline correction then connects -- left corner, that's magenta, to the center up. And from there, it connects down to the right hand of the trailing peak.

And what you can see, and what I tried to show in this schematic, is again reflected on the top. You actually are cutting away now, not only the background, which would be the right angles underneath, but you are cutting away on top of that two triangles that are actually peak information.

And on the left hand, you are cutting away more of the carbon 12 rich part, and on the right hand, you are cutting away part

of the carbon 13, which means the left-hand peak will again be apparently more enriched than carbon 13, than it actually ought to be if it would be resolved, analyzed, whereas the right-hand peak, again, will appear to be more depleted.

Q. Which would give you a higher delta value?

A. A higher negative.

Q. A higher negative delta value.

A. Say -- you could say, for argument sake, both peaks should be minus 25 in delta. Here, then, you could easily look at the case where the left-hand peak would be minus 24 and the right-hand peak would be minus 26, just as an example.

MR. MC LAREN: Excuse me for a moment. Would it be possible -- Dr. Botré is saying he can't read the values besides the carbon. Can you blow that up?

THE WITNESS: There are no values.

MR. SUH: Those aren't values.

THE WITNESS: It's just Carbon 13 and Carbon 12.

DR. BOTRÉ: Which is which? I

cannot see.

MR. BRUNET: Perhaps should we refer to colors?

MR. SUH: Yeah. The carbon 12 is on the left.

THE WITNESS: Carbon 12 is on the left, carbon 13 -- as you look at it, carbon 13 is on the left of the peak, and carbon 12 is on the right of the peak.

DR. BOTRÉ: I assume that, but here it looks like it's all 12 or --

THE WITNESS: No, it's just probably the reproduction. That is carbon 13.

MR. SUH: This is carbon 13?

THE WITNESS: That is the carbon 13.

MR. BOTRÉ: I know which is on the left and which is on the right. That's not the peak there.

THE WITNESS: Yeah.

MR. BARNETT: Can we just get clarification from Mr. Suh, that this slide show is going to be entered as an exhibit in conjunction with the doctor's testimony.

MR. SUH: Yes.

MR. BARNETT: Then it would be

appropriate for everybody to have that now. I mean, exhibits were due on April 24th, if I recall correctly, and this is a direct exhibit, not a cross exhibit.

MR. SUH: Well, we can -- sure. We can provide a copy now.

MR. BARNETT: For Dr. Botré as well and the Panel members?

MR. SUH: We will get color ones.

DR. BOTRÉ: It's okay. No. I can

read --

MR. BRUNET: Can we anticipate to have a copy maybe in 10 minutes or 15 minutes?

THE WITNESS: You can have this one, if you want.

MR. BRUNET: Well, we need three, here.

MR. SUH: We'll get copies here.

MR. BRUNET: Okay. Thank you.

Q. (By Mr. Suh) Turning to -- let me ask you this.

MR. BARNETT: Just for the record, can we just point out that Mr. Weiss just took notes from Dr. Meier-Augenstein what he had with him for his testimony.

MR. JACOBS: That's not true.

MR. BARNETT: What are those, just for the record?

MR. SCOTT: They just asked to go make copies of these.

MR. BARNETT: And those were the articles?

MR. SCOTT: Yes.

MR. BARNETT: Okay. Thank you.

Q. (By Mr. Suh) Okay. Turning to slide, the next slide, it says, in your opinion, "Background subtraction that's practiced by LNDD results in a loss of carbon isotope information."

A. Yeah, because that chromatogram you see there is actually a chromatogram that was produced by LNDD.

Q. This one right here?

A. Yes.

Q. And this box right here is --

A. That's, for the registration purposes, taken by a publication from Professor Brenna.

MR. YOUNG: Excuse me. If we're going to refer to a chromatogram, could -- we

can't read the identification on the exhibit. Could we know which one it is?

MR. SUH: Which one is it?

MR. SCOTT: It's LNDD 1790. LNDD 1790.

MR. YOUNG: And the Brenna article is?

MR. SUH: It is GDC 1297, Exhibit 1304, and just for speed's sake, I can hand out the article so that we don't have to look for it.

Q. (By Mr. Suh) Can you explain what you mean by the background subtraction as practiced by LNDD?

A. You can see in the chromatogram that we see the backgrounds are subtracted exactly in the way illustrated in the previous slides: that you have a sloping -- that you have, basically, a triangle forms by the two lines, that actually indicated that part of the fractions of the adjacent peaks. And the picture taken from Dr. Brenna's publication is just -- is just to try to help you visualize what that actually -- what effect that has.

Q. What exactly is happening in here?

A. You have two peaks that are overlapping, they meet -- the point that they meet is developed after baseline, so the baseline correction isn't -- basically corrects for something that is not based on the cuts -- actually, the peak information.

If you look at the picture on the right, you can see that the dotted lines, this is basically what the individual peaks would look like. And the solid black line is the result of what the peak appears to the system because of the overlap, because the intensities just add up.

Q. Okay.

MR. BARNETT: Sorry, Mr. Suh. The exhibit reference we were given was 1790, and I apologize.

MR. SCOTT: 1798.

MR. BARNETT: Thank you. We're

trying to follow along with the testimony on the slide show.

Q. (By Mr. Suh) Did you have an opportunity to see whether or not these problems existed in the other chromatograms?

MR. BRUNET: I'm sorry. On this

one, I would like USADA to confirm that it's the right number and that they're able to follow along.

MR. BARNETT: It is. But I have to say, I've never quite seen a direct like this.

If they're going to use documents -- because to confirm that on the fly with my English major background, I'm not sure that's a good idea -- if they're going to use a document which they took from the exhibit, it would have been easy to include the actual page references.

And I'm the last one that wants another break, but it seems that this is improper direct. They should have all the cites there so that everybody can follow along. And the confusion being created is by the style of this slide-show testimony.

MR. CAMPBELL: Mr. Suh, I'm a little bit concerned that all of this is eating up your time, and eating up your time is not something that I want to see, because I want to see the evidence. If we gave a break -- and could it be possible for you to identify all this stuff so that we don't cut into your time?

MR. SUH: Sure. We can do that.

Okay.

MR. CAMPBELL: Could we do a break?

MR. BRUNET: I'm wondering if we shouldn't suspend the direct at this time and bring the next witness, if that is possible.

MR. SUH: He has to travel.

MR. BRUNET: Okay. Let's take another recess.

MR. SUH: It won't take very long.

MR. BRUNET: Before we resume, I think USADA has a request.

MR. YOUNG: We would like to enter an objection to this style of examination.

We would direct the Panel's attention, for example, to Page 10 of the PowerPoint presentation and Page 15 of the PowerPoint presentation, which are just examples of what's going on.

Counsel is perfectly free to ask this witness his opinions on anything. He's perfectly free to show the witness chromatograms and ask him his opinion on the chromatograms, but it is absolutely improper direct examination to put up a PowerPoint with the text answer to a question; then ask the question; and then have the witness read his answer off of the PowerPoint. That's not direct testimony. And that's what 90 percent of this PowerPoint presentation is all about.

And so, if they want to ask him questions, that's fine. But they can't have the answers up on the screen before he answers them.

MR. SUH: Well, a couple of responses. First of all, this presentation was not prepared by us. It was actually prepared by Dr. Meier-Augenstein, and he is the one that put these slides together. Those are certainly not our words; they're his words. We certainly helped him organize it, and there are some slides that dealt with WADA technical documents, but all of the -- all of these, the content was previously provided by Dr. Meier-Augenstein, slide by slide.

Secondly, I have to say this: First, I am aware that the use of a PowerPoint presentation has been used prior to today's proceeding by Dr. Catlin. And that the reality is this: That we have been dealing with exceptionally complex concepts. Throughout USADA's case, they have done a very, very summary presentation. They asked their witnesses, are the chromatograms reliable? Yes. Is there linearity? Yes.

And they move right on with no explanation of what's going on. We felt, and we strongly feel, that the Panel is entitled to understand how these processes work. And we are doing our best to try to explain them to the Panel.

It is very, very difficult within the time constraints that we have to go -- and I mean, properly, since we have not had an explanation of a lot of these concepts to date. We have had witnesses that have come in and simply said, Everything is fine. And it's taken time to cross-examine them. But even then, they have -- we have not been able to provide a full picture of what's going on.

If we are able to provide a full picture, I think it would be deeply helpful to the Panel to see exactly how the analysis of chromatograms work. And in order to do that, it would take hours and hours. This is our attempt at trying to make sure that we can do this within the severe time constraints we have,

which is consistent with the expedited nature of arbitration.

I mean, there is a precedent for this. If we had weeks and weeks to be able to present this testimony, Dr. Wolfram Meier-Augenstein's testimony might very well take an entire day on direct, and we would lay it out. But we are covering a lot of ground with this witness, and it is our attempt to streamline this in a way which USADA has always said is appropriate. USADA's always said it's streamlined, that the rules of complex civil litigation shouldn't apply, and we are trying to do this within the context.

If this is cut off -- if this explanation is cut off, we feel that the Panel will not have vital information about our arguments. And it's very difficult to explain the chromatography without having PowerPoint and without having slides to show it. They wouldn't know. They haven't tried yet.

We are trying to do that, to show what is going on here. And that's, -- you know, within the two or three hours we have allotted for this witness -- we've already been through

one hour with all of the interruptions -- I don't see how else we would be able to do it.

MR. BRUNET: Mr. Young.

MR. YOUNG: Briefly. There was some comment about all of this has been provided to

USADA.

We have a one-paragraph witness description from Dr. Meier-Augenstein. The first time -- and he never filed a report, which could have been done, and which we could have been given a copy of. We could have been given a copy of this when exhibits were due. None of that happened.

If you look at Slide 58, on Page 10, this is conclusions to be drawn from analysis of mix cal acetates, etc, etc. He can be asked to testify. He can be asked to look at chromatograms. We're not trying to preclude his testimony.

What we're trying to address is the fact that he's got his testimony prepackaged in a slide show before the questions are answered -- or questions are asked.

MR. CAMPBELL: Mr. Suh, I have a question for you. You have raised this: your

time concern. Are you at a point where time is so critical that you are not going to be able to put on your case in chief, or can you comfortably put on your case within the time allowed?

MR. SUH: I guess it depends how many interruptions we have. I think we can put on this case within the time allotted, and, frankly, I believe we could very well get to closings by Wednesday if we were allowed to proceed in this fashion.

MR. CAMPBELL: Okay. Just let us know if you have got a problem, okay, with the timing issues.

MR. SUH: Okay.

MR. BARNETT: Mr. Campbell, to the extent that's a concern, USADA is willing to give Respondent three or four of our hours, if that will help.

MR. CAMPBELL: Thank you.

MR. SUH: That would help. Actually, that would help a lot. We have, frankly, been parsing out minute by minute as we go through this.

MR. BARNETT: All right. And again,

we want the evidence to come in. We just want to hear it from the witness, not from the slide show.

MR. CAMPBELL: You've got an agreement now, so work it out.

MR. MC LAREN: Mr. Suh, what we would like to do is the following: You can certainly use all of the different graphs and charts and so forth, but until he's given his response to your questions, would you keep the written comment/conclusions off the screen?

MR. SUH: Perfect. We would be happy to do that. That's more than fair. We were trying to do that to begin with.

Okay. Shall we proceed?

MR. MC LAREN: Please.

Where are we? What page of this printout?

MR. SUH: Page 3. And Todd, before you -- okay. So, we now have page references.

Q. (By Mr. Suh) Dr. Meier-Augenstein, have you looked at some of the chromatograms from this case -- this case -- and have you seen some of the same issues that you have previously described about background -- in fact, let's put

up slide 14, just so that everyone recalls where we're at.

This issue right here where you see this kind of peak background subtraction. Do you see that?

A. Yes.

Q. Do you see that same kind of issue exists in the actual chromatograms in this case?

A. Those answers would be no, because the chromatograms from the Respondent's sample have been run on a different machine. So this kind of information is not contained. In the copies I was given, there is barely a line to be seen occasionally that talks perpendicular from the presumed peak, start of the peak and down to the time which could or could not be the integration of how I would indicate, basically, over which bit of the chromatogram the peaks were integrated. But that version of the software similarly produces a different style of chromatogram and that's not provided, because, you see here -- you see the lines for the background suspension, but you don't see the lines that would indicate that the peaks -- where the peaks start and ends.

Q. Okay.

A. But since they're both run by the same lab, I had to work -- I had to make some assumptions, there were several assumptions I had to make, that the practice that were used to run these samples; i.e., the samples were run in an automatic fashion with background subtraction, and zero baseline subtraction disabled, as it is shown on the -- some of the data printouts from the lab. But that has been done throughout, and that then the data got processed similarly in a matter or fashion, because on the individual data printouts for the individual analysis, all of a sudden, there are lines that show zero subtraction enabled and background subtraction enabled.

Q. And again, what is your opinion of

the chromatography that you see as it relates to
the --

A. Pertaining to the Respondent's samples, the chromatography, it's not -- I'm afraid to say, it's not very good.

Q. I would like to show you three examples. Please turn to the next slide.

Do you see -- these are

chromatograms. They're all on the same sheet. They're Exhibit 110, LNDD 1791, USADA 343, and LNDD 1798.

Can you described what is shown in the various circles?

A. Basically, the area of the separation of two peaks of interest. They all show -- a chromatogram is a fraction of two or three different samples. The one at the right, that's called Exhibit 25, is the Respondent's samples -- is one of the Respondent's samples, and you can clearly see the difference in chromatography.

The one on the left, I would call baseline separated. There's absolutely no question about that. Whereas the example on the right is not based on separated peaks, and the sample at the bottom is, in essence, a severe case of peak overlap, as they are very nicely illustrated by the triangular look of the baseline subtraction.

Q. And which one is this one right here? Which chromatogram is that?

A. That is the fraction 2 chromatogram of an athlete. I don't know who -- who the

person is. That was part of the exhibit pack of all the 27 positive declared athletes by LNDD.

Q. Okay. So in other words, this is not Respondent's sample?

A. No.

Q. This is a chromatogram from the other chromatograms from other positive samples, right?

A. Yes.

Q. So this is an example of, actually, a chromatogram that has the separation you are talking about?

A. Yes. I mean it's a very nice example in two instances. It has very good separation, and you see hardly any at all -- any interference of other peaks as compared to the chromatogram on the right or the chromatogram below.

Q. This chromatogram right here that I just put a check on. Let me try that one again. This one. Which chromatogram is that?

A. That is an F2 fraction chromatogram from the Respondent.

Q. So this one is Floyd's?

A. Yes.

Q. And this one is somebody else's?

A. Yeah.

Q. All right. And this one right here shows -- the one that's Floyd's, shows the kind of poor chromatography you were describing earlier --

A. Yes.

Q. -- is that right? Now, which one is this one down here, this one, this lower one?

A. It's again from somebody else. Where the chromatography is at least as poor if not worse than Floyd's. At least that one shows how the background subtraction -- with peaks like that.

Q. So does the background subtraction method matter?

A. Yes, because if you are cutting away more than you should be cutting away -- if you are just dealing with a background that's inherent for a number -- or can be inherent to an analysis for a number of reasons, that's fine. But if you start to cut away peak area, then you lose peak information. You lose, actually, information on the carbon -- composition of the carbon isotopic composition of the peak.

Q. Why don't we go to the next slide?

A. So this is just -- this just shows, basically, an enlarged version of the chromatogram that was the previously slide at the bottom. And you can see -- this is for comparison purposes -- on the left, there is one peak that's labeled Number 1. You can see the background subtraction is perfectly all right, and the straight line connects the baseline to the peak prior to the peak and after the peak.

Whereas, basically, the peaks that are labeled four and five, you can see that the background subtraction -- that's something that we've -- actually results in a change in the isotopic numbers that are reported for these peaks.

Q. Okay. So this one is an example of, again -- yet again, poor chromatography.

A. The chromatogram is such, but the peak as just indicated shows, actually, a good example of where the background subtraction will produce a reliable number, in my opinion.

Q. Let's turn to the next slide. Who prepared this?

A. I did. I prepared this slide on the

basis of the information provided. These are the various data taken straight from the data printouts generated by LNDD, and they list the background values they report associated for each peak for which the report delta 13-carbon molecules.

Q. Now, can you explain to me why, in very, very simple terms, why did you prepare this exhibit?

A. To see that the background -- to see a sloping background does not necessarily mean that there is a change in the composition. So if that's the case, then you can't actually deal them out easily with the change in background, if the carbon isotopic composition of the background sequel, as such, is constant. Even so, you get a profile that might either slope from left to right or from right to left.

In this case, the background, apart from being sloping, very visible to the eye when looking at the chromatograms, the background numbers actually change, and they change in such a fashion that suggests that something is in the system, that a finite reservoir of X that

continuously starts to bleed through the system, and the isotopic numbers shift accordingly as they draw from the reservoir.

You start, basically, with more

negative values, and you end up with more positive values. You see on the left, all the points on the left are the background values reported on the data sheet.

Q. Okay. So let's take this one step at a time. Okay? First of all, this is the A Sample, right?

A. Yeah.

Q. And in the bottom, we have the internal standard: The etio, the andro, the 5-beta, the 5-alpha, the pdiol, and the 11-K?

A. Yeah.

Q. Right? And then on the vertical axis, we have a bunch of numbers, right?

A. Yes.

Q. And what are those numbers?

A. These are the background carbon-13 values as reported.

Q. Okay. And then over here at the start of this left-hand side, we have a red triangle. That's the sample A, F3?

A. Yup.

Q. We have the blue plus sign. That's the blank F3?

A. Mm-hm.

Q. We have the maroon solid line. That's the F2?

A. Yeah.

Q. And then we have a maroon -- it's kind of put together -- a maroon diamond. Excuse me. Maroon diamond, which is the A, F2, right? And then a blank, a lighter blue blank, F2.

Can you explain what -- let's just take one, for example. Let's say the A, F3. You see this dotted line?

A. Yes.

Q. What is the significance of that dotted line going up?

A. That is the trend line. That's just a linear refraction trend line, take it through the four points you see there. That basically, in essence, confirms that you have a perpetually changing background.

Q. And what is the effect of a perpetually changing background?

A. It will -- it will have an influence. It will have a bearing on the isotope numbers of the peak's report, because -- because you no longer subtract a constant. You subtract something that's actually constantly changing, and you have no -- you have absolutely no control over that. Especially to which peaks -- which way do we choose to subtract? As it was at the beginning or as it was at the end.

Q. In other words, you don't know

whether or not to subtract this value or this value or this value or this value or this value or anything on the dotted line, right?

A. Yeah, because, you are in the hands of the software. And the software algorithm that basically deals with this part of the -- of the instrument's function. The other point of that is that it actually shows you something that, for instance, the two-over-one trace, the 45-over-44 trace doesn't show you, the 44 -- the 45-over-44 ratio trace can actually make you believe you are dealing with the concert of that file because you see something, and it looks perfectly flat.

Q. And that 44-over-45 trace, that's

the one that Dr. Brenna was using to describe that there is no problem --

A. With the baseline.

Q. -- with the baseline?

A. Yes, and I'm afraid I have to disagree with that.

Q. And you disagree with it because that 44-over-45 trace does not show this constantly shifting baseline.

A. Indeed.

Q. Okay. And again, I mean, without going into each and every one of these, because we just did one, but all of these show a changing baseline; is that right?

A. For the Respondent's samples.

Q. For the Respondent's samples.

A. You can see that for the blank urines, the changes are much less pronounced. That's actually, in the case of -- I can't see from here -- for the blank urine F3 --

Q. This one right here.

A. -- there's hardly any change.

Q. Right. That one is pretty flat?

A. Yes.

Q. So if you were to apply the

background subtraction technique on this one, it would be pretty reliable, wouldn't it, because the point here, and the point here is about the same value?

A. Yes.

Q. Right. Now, let's compare that, before we turn to the next page, with, for example, this one. This maroon dotted line. That would obviously be a problem if you were applying background subtraction, right?

A. Yes.

Q. Did you prepare a similar exhibit --

A. Yes.

Q. -- for the B Sample?

A. Yes, I did.

Q. Did you find the same kind of

problems with the B Sample?

A. Yes. And quite amazingly the linear refraction lines, the solutions for the linear refractions are virtually identical and have the same isotope value of more than over 8, which indicates a very good fit.

But I have to ask that all these -- all these things are made on various presumptions, one of them being that the peak --

or that that identity of the peaks that are listed in the X-axis are actually correct. I can't vouch for that, because I have no -- I found it next to impossible to confirm those peak identities.

Q. All right. That's our next subject.

Let's turn -- just to make sure that everyone is clear, what you are saying is, look, you don't even know whether or not what they are calling as etio, andro, 5-beta, 5-alpha and the pdiols and the 11-K is actually the etio, the andro, the 5-beta, the 5-alpha, the pdiol, and the 11-K?

A. That's right.

Q. Let's turn to the next slide. Can you highlight the relevant portions.

This is a quote from USADA's brief. It says -- you see paragraph 42. Let's just take that line by line. "A parameter that is even better than the retention time is the relative retention time for a compound identification."

Right?

A. Yes.

Q. Would you agree with that statement?

A. Yes, in principle. We've discussed this before. This is a means which you have to employ if you have no direct means of identifying the peak.

Q. Okay. And it goes on to say it relies on the internal standard. That's the 5-alpha acetate, right?

A. Yes.

Q. That was added to each tube during sample preparation. And it goes on to say: "The internal standard has its own characteristic retention time. The relative retention time of any other compound is simply the retention time of the other compound in relation to the retention of internal standard."

A. It should basically be between the two retention times.

Q. Okay.

MR. SUH: Let's go to the next page, Todd, which again is quoted from USADA's prehearing brief. And why don't you highlight the relative sections.

Q. (By Mr. Suh) Paragraph 52: "The LNDD criteria for compound identification or the WADA criteria defined in the WADA technical

document." Okay. That's TD2003IDCR, which we'll get to in a moment.

And down at the bottom there, it says: "The retention time or relative retention time of the compound in the sample must fall within the range defined by the retention time or relative retention time respectively of the reference compound."

Right?

A. Yes.

Q. Would you agree with that?

A. That's what it says.

Q. And that is, in order to properly identify whether or not you have 5-alpha, 5-beta, the pdiol, the andro, the etio?

A. Whatever peak, yes.

Q. Now, just so this point is perfectly clear. I'm just going to put this up again, my very haphazard drawing.

Again, what we're talking about is, this first phase is the GC/MS phase. This is what helps identify the compound, right?

A. Yeah.

Q. And then this is what helps quantify the compound, right?

A. It doesn't quantify. It gives you the carbon isotope composition.

Q. Some day I'm going to get that right.

This -- and this phase cannot identify?

A. No.

Q. And this phase cannot give you the --

A. Isotopic composition.

Q. Yes.

And in other words, you have to compare the retention time from this phase to this phase?

A. Indeed.

Q. And you have to bring it within certain parameters in order for you to be able to --

A. To have a degree of certainty that you are talking about the same compound.

Q. And that's what USADA's brief was saying when they said that it must fall within -- within the range defined by the retention time or relative retention time, right?

Let's take a look at the actual WADA technical document. This is that TD2003IDCR which is referenced by the USADA brief.

Could you highlight the relevant portions.

"For capillary gas chromatography, the retention time of the analyte shall not differ" -- analyte, by the way, means, of course, andro, etio, 5-alpha, 5-beta -- "shall not differ by more than one percent or plus or minus .2 minutes (whichever is smaller) from that of the same substance in a spiked urine sample, reference collection sample, or reference material analyzed contemporaneously."

Right?

A. Right.

Q. Okay. All right. Why don't we turn to the next slide, please.

Now, this is Exhibit 12, USADA 130.

Can you explain what Exhibit 12, USADA 130 shows?

A. That shows the chromatogram on the GC/MS system --

Q. Excuse me, Exhibit 24. This is a typo. We will fix that. It's Exhibit 24, USADA

130.

Can you explain what is circled down

here?

A. The relative retention times for the compounds contains, in the sample, relative to the internal standard 5-alpha androstanol and acetate.

Q. Okay. So this is the LNDD -- there we go.

A. So these are the relative retention times for these compounds relative to this internal reference or internal standards.

Q. And again, I mean, not to belabor the point, but this chromatogram, right here -- I'm just going to put this up one more time. Todd, if you can just flip that up -- that chromatogram is coming from this phase, right?

A. Yes.

Q. In other words, it's helping you identify the compounds?

A. Yes.

Q. Okay.

All right. I would like to show you a part of a transcript -- put that up -- where Dr. Brenna said, "Well, they have retention

times that match on previous, with the previous GC/MS, and the GC/MS delivers structural information, like aliquots, and so forth, which tell us which is which."

Right?

A. Yes, I agree with that.

Q. Do you agree with this statement as it applies to Mr. Landis' example?

A. It applies to any -- it applies to Landis, yes. It applies to Mr. Landis' sample as it would apply to any situation where you have to rely on GC/MS information to identify peaks and GC IRMS.

Q. Have you looked at the relative retention times for Mr. Landis' sample?

A. Yes, I have.

Q. And have you prepared a chart which shows what they are?

A. I have.

Q. And are they -- before we go on, let me ask you: Are they within more than -- do they comply with the WADA Technical Document 2003IDCR when it says, "The retention time of the analytes shall not differ by more than one percent or plus or minus two minutes, whichever

is smaller from that of the same substance in a spiked urine sample"?

A. Comparing the GC/C-IRMS chromatograms to the GC/MS chromatograms, and the peaks, as identified at LNDD, and their associated retention times, no, they do not.

Q. Okay. Let's turn to the next chart, this one right here.

I know there's a lot of data --

MR. SUH: But Todd, if you could, since this is an important chart, why don't we focus on each of the quadrants in turn. Okay?

Q. (By Mr. Suh) Let's take the upper left-hand quadrant.

Okay. So what we have here is the relative retention time, right? And this is for -- let's see -- this would be for the A Sample, right?

A. Yeah.

Q. Okay. And for the A Sample, this is the relative retention time, correct?

A. Yes.

Q. And when you look -- these are the compounds running down the left-hand side: etio, andro, 5-beta, 5-alpha, 11-ketio, and the

pdiols, right?

A. Yes.

Q. And can you explain to the Panel what this column is right here?

A. This column is the different -- the percentage difference of the relative retention times between this column, which is -- which is shown in the previous slide, which was the mix acetate 50 mix that acts as the anchor, and these are the relative retention times from the GC/MS analysis of Respondent A Sample.

Q. And then what are these values right here?

A. These are the relative retention times from Respondent's A Sample of the GC/C-IRMS analysis, and the data are basically taken as -- as identified by LNDD.

And as you can see, the percentage difference between here and here is 5.7 percent; from here to here, 5.9 percent; from here to here, 5.9 percent; again; 5.9 percent; 6.7 percent; 6...all 6.06, so let's call it a 6 percent on the conservative side, so well outside plus or minus 1 percent.

Q. It's supposed to be not more than

plus or minus one percent?

A. It's not supposed to be -- I mean, in duplicate cases I think there's a bit of leeway. I have no idea what the leeway is, but I can't imagine it's 600 percent. Because from one percent to 6 percent, that's -- well, 500 percent difference. I can't -- I can't see that. So I have no confidence in the data in terms of peak identification whatsoever.

Q. Let me ask you, Dr. Meier-Augenstein, because we've heard a lot of these questions asked by USADA, isn't it close enough? Isn't 6 percent close enough to 1 percent?

A. No, it's not. I have the rules that

clearly state the difference should not be more than plus or minus 1 percent. Then if 6 percent would be sufficient, then the rule would say it would be plus or minus 6 percent.

Q. Let me ask another question USADA often asks. Come on, you know -- you know that this is 5-alpha.

A. No, I don't.

Q. Come on, don't you?

A. I honestly don't.

Q. You sure?

A. I honestly don't, no. I haven't run the samples. I rely on the information that has been generated by the lab that run the samples, and that information just does not bear out the identification they made.

Q. Let me ask you another question we hear. Forget about the rule for a minute. You know, don't you? You know it's kind of in the right place. It should be -- these are -- these are what they are.

A. In the right place is the whole thing. That doesn't identify -- that is not proof positive of identity. I can show you chromatograms what I would imagine, for people, some would have objections to that. I would show you a lot of chromatograms that show similar peak patterns, elution patterns of completely unrelated samples.

Q. Okay.

A. What is the whole point of having relative retention times? So you have certainty in what you do.

Q. Okay. Well, let's turn to the -- let's go to the lower quadrant, the left-hand lower quadrant, actually.

MR. SUH: Todd? Yeah, thank you.

Q. (By Mr. Suh) So you can see where we're going, and this is the retention time. Okay? And this is for the A Sample, right?

A. Yeah.

Q. And once again, this is etio, andro, 5-beta, 5-alpha, 11-ketio, and the pdiol, right? Can you explain what's in this column here?

A. This is, again, the difference between the retention times as reported in the GC/MS chromatogram, and then the A Sample -- Respondent's A sample to the standard mix that the lab uses to anchor and to actually generate a reference point for relative retention times, and retention times of all the target compounds, including, of course, the internal standards that anchor stability retention times.

Q. We are comparing to the anchor, and what is this?

A. This is the retention times in

minutes as reported to the pdiol on the standard mix the lab uses, and this is the retention time reported in the GC/MS analysis for the pdiol on the Respondent's B Sample -- A Sample. I'm sorry.

Q. So let's just use this pdiol one as an example. All right? Let's look at this. What you're saying is that the retention time is 27.53 minutes?

A. The GC/C-IRMS analysis, yes.

Q. Let's just be -- and just so we're very clear about this, when you say 27.53 and 19.06 -- 27.53 and 19.03. Okay?

MR. SUH: Todd, flip that up.

Q. (By Mr. Suh) That's -- the 27.53 would have been here?

A. Yes.

Q. And the 19.06 would be at this stage, right?

A. Yes.

Q. And again, they have to come within specification, right?

A. Indeed.

Q. And can you show -- now, what is the difference here? What's this column?

A. This is the difference in absolute retention time between the key or the target compound, between GC/C-IRMS and GC/MS, between these retention times reported on the GC IRMS, as identified by the lab, and the anchor GC/MS

retention times.

Q. So in other words -- and by the way, what is the WADA technical document requirement?

A. Over .2 minutes.

Q. 0.2?

A. 0.2 minutes.

Q. And this is -- for example, this one down here, the pdiol, is how many minutes?

A. 8 minutes, 8.33 minutes.

Q. What is the percentage difference between what it's supposed to be and what it is?

A. You asked the wrong -- but, let's see, 0.2 -- that would make it 400 percent; is that correct?

Q. If you want to add another zero, 4,000 percent?

A. I will; in fact, 0.2, 4,000 percent.

Q. 4,000 percent.

A. Well, but I mean --

Q. Let me ask you this question. Isn't that close enough?

A. No, it's not. I mean, it's a good example why relative retention times are better.

Q. Okay. Well, come on. Forget the -- don't you know, this is -- you know that these are the right -- you heard USADA witnesses.

A. No, I only know this for this column and for this column, because here, I have the identification information through the mass spectra.

Q. Okay. Let's go to the next column. This is the B Sample, all right?

Again, this is the relative retention time which you have just described as being a better measure, right?

A. Yes.

Q. Okay. Just for convenience sake, this is, again, set up exactly like the left-hand side. It's a pair, right? This chart is set up just like --

A. It's exactly the same as we have just seen for the A Sample.

Q. Target analytes?

A. Yeah.

Q. The standard calculation?

A. These are the relative retention times, yes.

Q. The GC, the IRMS, and here's the relative retention time difference. Can you remind me, once again, what the relative

retention time difference --

A. Plus/minus 1 percent is for the WADA -- 1 percent is in the WADA documents.

Q. And again, these are between 6.1 --

A. And 7.2.

Q. -- and 7.2 percent.

All right.

Why don't we go down to the retention time box. Again, this is the -- just the straight time, right? So here are the target analytes; here is the standard; here is the time difference in the GC/MS; here is the time difference in the IRMS --

A. These are the actual retention times.

Q. Actual retention times. Excuse me. And here's the difference, right?

A. (Nod of head.)

Q. And what, again, is the difference supposed to be?

A. 0.2 minutes.

Q. 0.2.

Okay. Let's turn to the next slide.

All right. Can you tell me which chromatogram this is?

A. This is the chromatogram of Respondent's F3 fraction.

Q. Now, what about this did you find significant? This is Exhibit 25, USADA 30-49.

A. Yeah, to be precise, it's the B Sample.

Q. It's the B Sample. So, okay, this is B. This is B, F3?

A. Why I thought it was significant was purely because that area that you would expect, based on the lab's own identification, the internal standard, the reference compound is so crowded that it's actually virtually impossible to say which of those peaks is that internal standard.

Q. And this is the one with the 5-alpha and the 5-beta in it, right?

A. The analysis, yes.

Q. This is the fraction, Fraction 3?

A. Yes.

Q. With the 5-alpha and 5 beta, right?

A. Yes.

Q. But let me ask you: Can't you just tell by looking at it which one the internal standard is?

A. No, I can't. I don't know how many, 1, 2, 3, 4, 5, 6, possibly 7 peaks. Given a difference of four minutes that, discovered between the GC/MS and the GC IRMS presumed --

Q. You just can't --

A. -- according to the GC/MS, the internal standard should come here. Six hundred seconds is ten minutes. This is where it should be, and it's actually somewhere in here, and I could not honestly tell you which one it is.

Q. Let's flip back to that, because this is pretty important.

MR. SUH: Todd, can you flip back to the previous chart.

Q. (By Mr. Suh) When you say the internal standard should appear here, how are you getting -- where are you getting that four-minute time from?

A. From these differences. This is the retention time, absolute retention time, as reported for the GC/MS, 10 minutes, and let me see, 10.69 minutes. And this is the peak that the lab uses as the internal standards. It's the GC IRMS, and that is 14.45 minutes.

Q. Okay.

A. So the difference is about four minutes.

Q. About four minutes.

A. Yes.

Q. So let's go back to the next chromatograph, and four minutes is about --

A. Two hundred forty seconds.

Q. That's not even about 240 seconds. It is 240 seconds. So that would be -- say, if you were to put 240 seconds over this, you would be beginning, say, at 800, right, and going to, say, 800 plus 240 is a 1,040?

A. No, no, no. You would have to start at the 600, of course.

Q. I'm sorry. That's right. Because it's at the 600.

All right.

A. That is ten minutes, yes.

Q. That's right. Here we go. And then 240 is somewhere --

A. In that bunch. That is the benefit of hindsight. I didn't make this assignment. This is the assignment as made by the lab.

Q. When you look at the document package, do you see any documents which help you

identify how they decided which one of these peaks constitutes the internal standard?

A. No.

Q. Let's go to the next slide. No, not that one. Not that one. 26. All right.

Can you explain what these chromatograms are?

A. This is the mix cal 50 standard that has all the key metabolites of interest in it plus the internal standard that acts as the anchor for the relative retention times. This is the GC/MS analysis as report- -- as shown in the LNDD lab documents.

Q. Okay. What's the date for this one?

And while we're getting that, can you just describe what this one is down here?

A. This is a chromatogram that's -- which I pulled out. This is USADA 140.

Purely for illustration purposes. I just wanted to show that you can't have chromatograms where the peak pattern, the elution pattern looks very similar, because I mean you could be tempted to say this is the internal standard. You could be tempted to say this tiny bit here, or this peak here, that peak

here. You could be equally tempted to say that these two peaks here would be these two peaks there.

And then it becomes a bit less straightforward, whether these two peaks are these two peaks or whether that peak is only that one? Similar, is this one this peak, or is this one that one? It's hard to say.

The one condition for this chromatogram are completely different for that. It's a different column. It's a different system. It's a different temperature. It's just -- but it shows you that the chromatograms can actually visually look, yeah, similar. You have a similar --

Q. In other words, although this one

looks sort of like this one, this one is associated with the Respondent's sample, right?

A. Yes. This is the Respondent sample.

Q. And this one is completely different?

A. Completely different, but nothing to do with it.

Q. But it kind of looks the same?

A. Somewhat. Yes.

Q. So what you are saying is, you just can't look at it --

A. And say, basically, Oh, this is that. These two are the --

Q. This one looks like this one, so we're going to say that's that. And this one kind of looks like this one --

A. Just by appearances, this would be foolish. And the reason why this would be foolish is because this chromatogram -- this is a chromatogram of a steroid mixture. This is a chromatogram of an amino acid mixture. Amino acids have nothing to do whatsoever, chemically, or chromatographically for that matter, with steroids.

MR. YOUNG: Excuse me. Where does the bottom chromatogram come from? It's not marked?

MR. SUH: It's just a chromatogram

you have from --

THE WITNESS: I pulled out of it -- gosh, out of my computer, basically. It's one of the amino acids, an analysis that we had run ages ago.

MR. SUH: Just by way of

illustration.

THE WITNESS: Yes, it's just by way of illustration. It has nothing to do with the case. This was just to illustrate in case the question came up.

MR. SUH: Sure. I could have drawn one, right?

THE WITNESS: Yes, yes, that's very true.

MR. SUH: Same thing, right.

THE WITNESS: You could have drawn one, precisely, but that wouldn't -- I don't know whether that would be acceptable. So I thought of the idea of drawing one myself. A) I'm not a very good artist, and B) if I have something that looks similar, it might help me to illustrate a point. You can't go by appearances. You have to go by solid data and solid numbers such as you would for retention times.

Q. (By Mr. Suh) Can you go to Slide 28? Let's skip Slide 27.

Okay. Can you explain -- this is a table taken from a peer-reviewed study by -- the lead author was M.P. Ricci. Did you read it?

A. Yes.

Q. Okay. And this article has now been provided to USADA.

Can you tell us why you pulled this table out?

A. Because it's a good illustration of what happens if you have peak overlap. It basically -- it shows what I tried to explain previously on the sketches I did, and pictures I copied from other published paper, material. That if you, basically, look at these two compounds within the signal -- where the peaks are well-resolved, and these are the native carbon-13 values, as the decreasing peak overlap, the second peak becomes more and more depleted, the numbers become more negative; whereas for the lead peak, the numbers become more positive with increasing overlap. And the same -- same is here.

The only difference between these two examples is that this is carbon 13 containing carbon 7, this compound contains 17 carbons in its skeleton. This compound contains 80 carbons in its skeleton. It's just an illustration to show what you are facing when you have a duplicate of peaks that are based on resolve.

Q. Not -- peaks that are not based on resolve, this is an illustration of what --

A. That the first peak will tend to become more positive than it should be, and the apparent value is more positive than its actual value, whereas the further-on peak the apparent value is more negative than the actual value.

Q. Okay. Let's turn to the next slide.

Now, can you explain what this is?

A. This is, again, just for illustration purposes. This is a chromatogram from a fatty acid extract to a marine organism. The sample was sent to us at the university for a conferred analysis. We did it completely blind. We just knew, roughly, what the protocol was. We received a sample ready to inject. And it's -- it's basically -- it's a nice -- in a way, it's sort of a nice chromatogram. It's a nice example, however, because it gives you very signal views of -- a very strong view of overlapping peaks, but it also gives an example here where you have matrix interference of an unstable background. Because you can see at the beginning of the chromatogram, the background is perfectly flat, and it starts to slope up, as you would expect, because of co-eluting -- but there's a middle section here, but there is still something in the sample that makes another contribution to the background.

Q. Now, what we have heard during this trial is that, well, if the peaks are small, that are interfering or co-eluting, it doesn't matter because it's too small to matter.

A. If you know what you are dealing with. If you, if -- yes, you can make -- you can make the statement. But if you have no idea about the nature of the peak, its isotopic composition, then, you are a bit overstating things.

If you know what you are dealing with, that you have an expectation, and you see a defined contribution of that peak is something like 1 percent to the overall peak, and their relative carbon isotope compositions are similar, then, the -- yes, the contribution will be very -- will be small. Whether it's measurable or not, it's hard to say, because you are making it -- you are making a lot of

assumptions.

However, if you have a peak that no

matter what size it is, has a little bit composition that is hugely different of your actually target peak, and you can now get a contribution to more stuff, then, it's no longer safe to assume the contribution will be minor.

Q. So let's say -- do one of my drawings again -- let's say you have got a peak here, and then this peak like this, and this peak, and let's say when you move to -- say that's the GC/MS one, right? Let's just use that as an example. Assume it is. And then you move to the IRMS, and that peak kind of disappears. What you are saying is that you would really need to know what that small peak was composed of in order to say whether or not it made a difference or not?

A. Yes.

Q. Okay. Let me -- let's put up the next slide. Okay? The next slide is?

A. These are the data from three analyses of the sample for which you have seen the chromatogram in the previous slides. And if you look, for instance, at the peak, the

retention time of 32.1 minutes, and you would have to go back to the previous slide, so we can have a look at what the chromatogram looks like, you can see that on two occasions that analysis -- everything automated, i.e., there is no operator intervention. The software of the IRMS instrument is completely left to its own devices. There is one set of settings for the peak recognition and background subtraction mode, and the data are basically as they come off the instrument.

And you can see in the first analysis, for instance, in this peak, you get a number, which, since you know what we're analyzing, what the original sample is, one would say, find that value. It doesn't ring any alarm bells.

Similarly in the third analysis of the same sample, we get a value. That is not exactly the same, but it's still within reason. But the second injection of the same -- so these are three consecutive injections.

Q. Let's say this one, for example, this here.

A. That's injection 1, that is

injection 2, this is injection 3, as numbered. These are the actual findings. And you see the second injection, for reasons best known to itself, the software all of a sudden came up with a value of minus 10.5. If you were to ask me why, I could not give you an answer.

Q. That's close enough, isn't it, Dr. Meier-Augenstein?

A. The difference of 16. No. By anybody's standard, that's not close enough. And that's a problem. If you run the sample all you want, how do you know that you don't have a spurious result because of some matrix interference?

At one moment, the software seems to be perfectly adequate in dealing with it, and in the second one, for some odd reason -- I don't know. One data point. Two data points. I have no idea. This is pure speculation -- a difference in the way the peaks were defined by the software, all of a sudden, it comes up with a number that is, yeah, nonsensical in this context.

Q. All right. Let's move on.

Let me ask you a question: Do you

believe that the -- can you give an opinion as to the quality of the chromatography in this case in IRMS and its potential impacts on the results?

A. From the chromatograms I have seen and the data I have seen, I would have not great confidence in the results in the cases of close overlap, of close-eluting peaks; and in the cases of chromatograms, the peaks actually have disappeared from the 44 trace.

Q. And do you see that, as usual, peaks

are not well separated?

A. Yes.

Q. Many peaks co-elute or overlap?

A. Yeah.

Q. Many peaks are poorly shaped?

A. Yes.

Q. Peaks have long-trailing tails?

A. Yes.

Q. And downward-sloping baselines?

A. Exceedingly downward-sloping baselines.

Q. Okay. Let's go to 33, and I would like to show you what is the A Sample fraction one.

What do you see when you look at this particular chromatograph?

A. That is a chromatograph I have absolutely no issue with. This is a nice, stable clean baseline that seems to be no indication of matrix interference. The peaks that are labeled are seemingly separated. I mean, there is -- this seems to be a bit tight, but it still looks -- it still looks -- it still looks baseline separated. This -- these two peaks here, that's clear daylight between the two peaks, so they would qualify as baseline separated.

Q. All right. Let's compare that to

the next slide.

What chromatogram is at the top?

A. That is GC/MS --

MR. YOUNG: Excuse me. Can we get the -- can we get the text off?

MR. SUH: Todd, can we blank the text? Maybe I can do it this way. Wait until that comes up.

Q. (By Mr. Suh) Okay. What do you find important about that circled area?

A. It shows you, basically, that in the

GC/MS, that these two peaks are just about baseline separated.

Q. And then look down at the one below. That's the matching IRMS one?

A. That's the matching IRMS chromatogram.

Q. And what do you see there?

A. That's -- the first peak in this group tails into the second peak of this group.

Q. And what impact does that have?

A. It will probably have an impact on the carbon-13 numbers reported for either peak. The first peak will give an apparently more positive carbon-13 number, whereas the second peak will give an apparently more negative, and neither number will be actually a true reflection of the peak.

Q. And does that impact the final delta/delta values? Does that impact the final per mil values of the result?

A. If you subtract too much, of course it will. Or, conversely, if you subtract too little.

Q. Okay. Can we turn now to the next slide.

MR. SUH: And Todd, could you blank out the text in the box.

Q. (By Mr. Suh) Do you see that there's two circles right here? Did you circle those?

A. Yes.

Q. Okay. And do you see that over here, there are eight smaller peaks?

A. Yes.

Q. And in the circles, do you see that there are two clearly visible shoulders?

A. Absolutely. That's why I circled them.

Q. With additional peaks with one of them sitting between 5-beta and 5-alpha?

A. Indeed.

Q. And this is the F3, A Sample, right?

A. Yes.

Q. Now, did you look at the matching IRMS chromatogram?

A. Yes, I did.

Q. All right.

MR. SUH: Can you turn to the next one, Todd, and just blank out the text once again.

Q. (By Mr. Suh) Do you see, looking at

this, that the peak between the 5-beta and the 5-alpha that was visible in the GC/MS chromatogram has disappeared?

A. Yes, it has.

Q. And that instead of eight peaks, there are four peaks?

A. Indeed.

Q. Okay. Now, what impact does that have?

The disappearing -- not the four minor peaks -- I'm talking about these ones right in here?

A. It appears that the smaller peak has gone. Has it now become part of the preceding peak, i.e. the peak that's labeled minus 28.82, or has it become part of the peak labeled minus 32.12?

Q. Oh, come on Dr. Meier-Augenstein, don't you know that it's so small it doesn't matter?

A. It's -- that is an unsafe assumption to make. If you don't know what the carbon-13 composition of that peak is and what contribution it makes, you cannot draw any conclusion. Not safe ones, that is. You can

speculate, but that's all it is: It's a speculation.

Q. It seems good enough, don't you think?

A. No, I'm terribly sorry. If someone's life depends on it, or its career over, that it, it's in a court of law, that you might be sent to prison; you don't work on assumptions. You just don't.

Q. They're all cheaters. You heard Dr. Catlin. They're all cheaters. Isn't that close enough?

A. Even cheaters have the right to a fair hearing and to have data used against them that are sound and can be proven. Here we don't even know what these peaks are. I just have to go back to the point I made earlier. I actually don't know what these peaks are. I refer to them under the names as identified by the lab. But, given the discrepancies in the relative retention times, I --

Q. All right. Why don't we go to the next -- actually, for time's sake, let's skip ahead to 39.

Do you see that?

A. Yes.

Q. Okay. 39. Do you see that there are three clearly visible shoulders?

A. Yes, that's the F3 fraction -- GC/MS chromatogram of Respondent's B Sample.

Q. This is the F3 for the B Sample, right?

A. Yes.

Q. In other words, the one that had the 5-alpha and the 5- beta and the pregnanediol?

A. As identified by this GC/MS through the mass spectrometer.

Q. Okay. And this is that first phase, the GC/MS phase, right?

A. That's the GC/MS chromatogram.

Q. Now, look to the next slide.

MR. SUH: And Todd, after he answers the question, you can put the text up.

Q. (By Mr. Suh) Do you see that now those peaks have disappeared?

A. Yes, they have. Correct.

Q. Can you tell us what the impact is?

A. No. They will have become part -- the first one, you see, obviously, we're not concerned about because that's -- this peak here

is not a target compound, or at least not a target compound as identified by the lab. These two are the target compounds as identified by the lab; hence, the peak that has disappeared is either again, part of the preceding peak or part of that peak.

Q. Do you see the 5-beta tails into the 5-alpha?

A. Yes, it does.

Q. And what impact would that have on the reported delta 13 --

A. Again, it's an issue that the preceding peak will become apparently lighter, and the further-on peak will be apparently more defeated.

Q. Is it one of the principles that peaks with good symmetry are important to analysis?

A. Good symmetry -- if you do not know what the sample is at all, then, yes, you would like to have good symmetry to have assurance.

As far as the chromatogram gives you assurance that one peak is actually composed of one compound and only one compound. If you are familiar with the chromatogram, and if you know,

for instance, you have injected too much, you can produce a peak that is not perfectly symmetrical.

In the case of an injection that is

too strong, i.e., too concentrated for the column that you are using, you will usually get a peak that has what's called a font. It almost looks like a sail or like a sawtooth.

As long as that doesn't interfere with any of the peaks in the vicinity, the symmetry issue then becomes less of an issue, no pun intended. But in the case of something unknown, where you rely that one peak is one compound, then, the first thing you want to see is the symmetrical peak, because that gives you some confidence that the peak is only comprised of one compound. Although, I have seen, in fact, instances that you have overlap of three peaks that just sit together, basically, like so, and appear in the total chromatogram as one peak that is perfectly symmetrical. This can happen.

Q. Okay. Let me ask you to skip ahead. I'm going to change subjects now.

Do you have an opinion about whether

or not LNDD controls work?

A. Which controls?

Q. Well, the controls -- specifically, we're going to start talking about the internal standard, 5-alpha.

A. Works in between -- there is -- does it work? As far as the relative retention times? Seemingly not, because where is it in this chromatogram? And even if you say -- even if you assumed that it is, say, fine -- let's take it for granted that you have identified it properly, then, even then, the relative retention times for the internal standard are still way out as we have shown.

Q. So you don't know for a fact that the internal standard is, in fact, the internal standard?

A. In those chromatograms -- if I would see this chromatogram blind and someone tells me there's the internal standard in there that on the GC/MS elutes at ten minutes, I would not be -- I would actually not be looking at this area for this peak. I would be looking at 600 seconds.

Q. Not even anywhere near these peaks

right here?

A. No. Because, if -- the only information I have at that point is, can the GC/MS analysis elute at ten minutes? And ten minutes is 600 seconds.

Q. What about even assuming that they picked the right internal standard. Let's assume for a minute they did. Did they find the internal standard within their own specifications?

A. If you include the internal standard and identified themselves in the chromatograms of both the Respondent's and the blank urines, then, some of those fall actually outside their own specifications.

Q. Okay.

MR. SUH: Why don't you turn to slide 48, Todd.

Q. (By Mr. Suh) Do you have an opinion about whether or not the data from the internal standard must be considered for quality control, not just data for this standard analyzed under conditions that are visibly different to the urine samples?

A. I think they should be considered.

And if -- if I read the transcript of Dr. Brenna's correctly, then it would appear that even he thinks they should be considered.

Q. All right. Let's turn to --

All right. Do you know -- well, let me show you. Let's go to Slide 51. And looking at Slide 51, can you explain what the top chromatogram is?

A. I mean, I've prepared the entire slide. This is -- this is the form fraction of the A Sample.

Q. Since you have prepared the entire slide, why don't you just describe what it shows.

A. It shows basically that the GC/MS -- sorry -- the GC/C-IRMS chromatogram of Respondent's F1 A, Sample. And, underneath, it shows the mix cal acetate that was run at the time. And the internal standards are as identified by the lab as internal standards here. It's reported that the delta value of minus 30.92, whereas the peak identified here, as the internal standard, is reported with a value of minus 31.64. On their own documentation, they report a range for

acceptance of minus 29.96 to minus 30.96, so this value is out by 4 points -- just under 0.7 per mil.

Q. Why don't you turn to Slide 52. Who prepared that slide?

A. I prepared that slide.

Q. Can you explain -- let's walk through this.

On the horizontal axis here, is this the sequence that they are -- that we have seen the injections?

A. There is the sequence as reported on the summary sheets.

Q. So the mix cal acetate --

A. Yes.

Q. -- the blank F3, the actual F3 --

A. Yes.

Q. -- the blank F1?

A. Yes.

Q. The actual F1, the blank F2, the actual F2, and the mix cal acetate to cap it off, right?

A. Yes, but that is according to the time stamps on the summary sheet and on the individual data sheets that reported the carbon

13 result was not run immediately after this sample. This was actually run five hours and 40 minutes after the sample.

Q. Yeah. And you don't know what happened in this time gap?

A. I have absolutely no idea. I find it just remarkable that the time difference is roughly 6 times 45 minutes, which is equivalent to how long one of those runs take, including the mix cal acetate.

Q. Let's make sure that that point isn't lost. You find it curious that the time gap, 5 hours and 14 minutes is 6 times 45 minutes?

A. It allows -- it's actually 7 times 45 minutes, but you have to include that -- the time it takes -- this time to run the instrument reports at acquisition time when the run starts.

Q. Right.

A. So you have to add to that acquisition time 45 minutes, which is the actual run time of one analysis.

Q. So what does that mean?

A. So it means, basically, once that run has finished, you could have run six

analyses of I-don't-know-what before that run started.

Q. In other words, six analyses of 45 minutes?

A. For which I have not seen any documentation.

Q. All right. Let's leave that issue aside for a moment, and tell us what is on the vertical axis here.

A. On the vertical -- you have basically, the carbon-13 gases, the carbon-13 values as reported for the internal standard peaks. In each of these ones.

Q. So, this is the acceptance -- acceptable range right here?

A. And the dotted lines give you basically -- the solid line gives you the target value according to the lab document, which is minus 30.49. And the dotted lines are plus/minus over 5, which is the acceptance level of uncertainty with which the value for this standard has to fall.

Q. Okay. And these are the ones that are out of standard, right?

A. Yes, it is.

Q. Let me ask you: Come on, isn't this -- aren't those close enough?

A. No. They're certainly not close enough. The minimum requirement would actually be to rerun the sample.

Q. Oh, come on, you know, this is enough, isn't it? This is close enough.

A. No, this is not close enough.

Q. All right. Let's turn to Slide 54. Did you prepare this slide also?

A. I did prepare this slide as well.

Q. Let's go and -- again, it's the same sequence, right?

A. With one single exception: that there is actually an unexplained time gap between the first mix cal acetate and the first blank urine of four hours and 45 minutes.

Q. What happened during that time gap?

A. I have no idea what happened during that time.

Q. Was it in the record? The documents you were provided?

A. No.

Q. So you have all the documents, right? You have all the ones -- you have what we have.

A. Yes.

Q. All right. And what do you find remarkable about this amount of time, 4 hours and 39 minutes?

A. It would allow you to run five analyses between the end of this one and the beginning of that one, of the time period of approximately 45 minutes.

Q. Okay. All right. And then what are these right here?

A. These are again values reported by the lab for the internal standard as part of these samples that fall outside their own acceptance criteria.

Q. Aren't those close enough?

A. They're outside the criteria. If you have criteria, then you stick to the criteria. If it's out, it's out.

Q. Okay. Let me ask you a question.

Have you seen or read the statement that LNDD's mix cal acetate is a positive control for GC/C-IRMS?

A. Yes. And I also made several statements that they were run contemporaneously and immediately before and immediately after the actual samples and that there is at least proof on two occasions where that is not the case.

Q. Let me ask you: Mix cal acetate, why is it a positive control for a GC/C-IRMS?

A. A positive -- how you have a control for GC/C-IRMS is one thing. A positive control for a human sample, in this case, athlete's human sample and the blank urine samples is a completely different matter.

In this case, the blank urine samples that are run, as far as I can make out, are run out as negative quality controls because they are known to be drug-free. So they act as a negative control, because the results from those samples should not come up in any -- at any point in the procedure as a positive, as a failed drug test. That is a negative positive control.

So, by reversal, the positive quality control in that context would be a urine sample, same matrix as the positive negative, same matrix as your athlete's sample, a known positive -- that gives a known positive for samples.

MR. SUH: Turn to the next slide there, please, Todd.

Q. (By Mr. Suh) What is the significance of this?

A. These are just basically the values we have already seen in the graphs I prepared where the internal standards give a report of this -- of the LNDD acceptance criteria.

Q. Okay. So these are the values that are out and you are pointing out that they're actually in the samples or in the actual blanks right?

A. Yes.

Q. Now, going ahead now, when you looked at the mix cal acetate IRMS, the values were actually all within the measurement of error, right?

A. For those mix cal acetates?

Q. For the mix cal acetates.

A. For those that are reported, yes.

Q. So why isn't it enough that the mix cal acetate internal standard is within the measurement of error?

A. Because it only gives you a measure of -- yes, of how well the machine operates

under those circumstances. So, if you have four clean known values, and what it allows you to do is basically to say the machine gives us the correct answer for this samples, but under these circumstances. That is the vital addendum, I would make.

Because it's -- you cannot conclude from a sample that is basically comprised of four clean compounds, resolved to a certain dilution in a clean solvent, that if those numbers are correct, if you then now -- if you now analyze the sample that has clear signs of matrix interference, has a huge background that is not anywhere close to the background you see in this standard, that those numbers will also be accurate.

Yes, they are an accurate reflection of what the instrument sees, but that is not to say that what it sees is an accurate reflection of what the material is that actually enters the system. Because you no longer have a clean compound that enters the system free of any interference from the left or the right or underneath.

Q. In other words, a mix cal acetate is

a clean matrix?

A. Yes, it's a very nice -- it's a very nice way to test whether the instrument on the benign condition operates perfectly well within specifications.

Q. But the actual samples are a dirty matrix. The urine samples are a dirty matrix.

A. That's why you shoot one negative

quality controls that are matrix-matched to the samples you run and positive quality controls that are matrix-matched to the samples you run.

Q. Is what you are saying that because the mix cal acetate is a clean matrix -- let me get my question out -- is a clean matrix, that the results when they're in the measurement of error are more reliable than when they are in a dirty matrix?

A. Yeah. They are -- they are solely a control of the instrument. You might as well just inject one material and say, This is our control that everything we do with the real sample is fine. That is as meaningful or as meaningless as running four clean compounds in a clean matrix. It tests the instrument, but not under the same conditions as your real samples.

Q. Let's put up some chromatograms that might help illustrate this. Let's go to 61: I'm sorry. Let's go to 60. Excuse me. 60.

MR. YOUNG: Again, can you blank the testimony out before he gives it?

Q. (By Mr. Suh) Who prepared that slide?

A. I did.

Q. All right. These are mix cal acetate standards, right?

A. Yes.

Q. And these are the ones that -- in your opinion, is there a good chromatography there?

A. The mix cal acetate is fine. I mean, I would be worried if that wouldn't be okay.

And on the lower trace, if you have basically three peaks that are very close together, two of them that are identified as target compounds, and that is definitely a peak, a sign of a peak overlap is between the first and the second.

MR. SUH: You can put the text back in, Todd.

Q. (By Mr. Suh) In other words, that these peaks are well separated, but that's in the mix cal acetate?

A. Yes.

Q. And these peaks are not, but that's in the actual -- the actual sample, right?

A. Yes.

Q. And that is, in your opinion, because this is a clean matrix, this is -- mix cal acetate is a solution which is manufactured, right?

A. It would be -- it would have been more useful, and I'm still not clear why it hasn't been done. Since the lab actually has a mix cal acetate mix, which is called mix S50 which contains all the target compounds which they use in the GC/MS to anchor the retention times, why that is not being run. At least the chromatographic challenge in terms of peak resolution would be the same.

You would still basically have the issue that the matrix -- that they won't be free of matrix interference. But at least it would actually give the lab a feedback on whether their chromatography and their IRMS is good

enough.

So, why they choose to run four and not -- and not a combination of all target compounds that have the androsterone in it, the 5-alpha in it, and the pdiol in it, I don't know. This is -- I mean, this is shooting fish in a barrel. Excuse me, but ...

Q. When you say "shooting fish in a barrel," you mean it's easy to identify the mix cal acetate?

A. Yeah, it's very easy -- this is not chromatographically challenging. Running human samples is exceedingly challenging.

Q. So let's compare some. Let's go to Slide 64. It's three chromatograms. Do you recognize the one at the top? By the way, who prepared this one?

A. This is, again, was prepared by me in trying to show -- to illustrate the differences, basically, that you have when you run a standard versus a reviewing sample.

Q. So this one is the controlled urine pool, F1, right? At the top?

A. The one at the top, that is Respondent's sample, and that is a mix cal

acetate.

Q. And the one below it here, the second one -- Todd, you can put the text up, as we go through this -- this is the sample F1?

A. For the Respondent.

Q. With a high-sloping baseline and a tailing peak?

A. And the presence of various peaks that are not even present in the blind urine.

Q. And then the one below that is the --

A. Is the mix cal acetate.

Q. Which has the low constant baseline and well-resolved peaks, right?

A. Yes.

Q. So when you compare these, this one to this one to this one, explain, again, what the difference really is between this one, which is the sample --

A. This is chromatographically

challenging.

Q. -- and this one down here, which is supposedly the standard, the quality control?

A. This is a quality control, not for the chromatography, this is the quality control

for the instrument. But, unfortunately, to the sound stage when they did this, depend on the quality of the chromatography.

Q. Okay.

Let's go to 67, and we can go through these relatively quick.

Do you remember in Respondent's -- excuse me -- in USADA's brief that they claim that the mix cal acetates were immediately run before and after -- immediately before and immediately after Respondent's A and B Samples?

A. Yes.

MR. SUH: Okay. You can put that up, Todd.

Q. (By Mr. Suh) All right. And did you actually run a calculation of whether or not they were or not?

A. Yes, I basically looked at the difference in the times as reported on the -- on the data that was on the sheets, and looked at the differences as mentioned before in the A Sample and the second mix cal acetate that, according to this, was run immediately after, was run 5 hours and 40 minutes after.

I don't know what your

interpretation of immediately is. Five hours, 40 minutes, in my book, is not immediate. And see, whenever we -- this sample was, according to this one, run immediately before. It was, as a matter of fact, run four hours and 40 minutes before. So, again, this is not my interpretation of immediate. Other people might have a different opinion on that.

Q. Okay. Let's just go through some of the documents, and maybe you could show how you -- you know, we're going to move on. Let's turn to the issue of testosterone metabolism.

All right. Turning to Slide 76, testosterone metabolism. It's straight out of USADA's brief. You see that?

A. Yes.

Q. Have you had a chance to look at it?

A. Yes, that's why I put it in; that's why I put it in the slide. It's -- it gives you a -- although it's not -- it's slightly difficult to read -- it gives you a good overview of the method of pass/fail testosterone.

Q. Okay. Let's go --

A. -- and explains why various

metabolites are shown in the analysis.

Q. Let's go to Slide 77. Who prepared it?

A. That is myself. I prepared it.

Q. And can you explain what it says?

A. Basically, it gives you the condensed version of the previous slide, hopefully, a bit easier to read. This is basically the compounds. That's -- if you -- that basically irrespective of whether produced by the body or administered exogenously for purposes of performance enhancement, it's broken down by these parts.

You form in the first instance -- this is an immediate. You form in the first instance 5-beta-androstanediol and 5-alpha-androstanediol. And in the next step, you form 5-beta-androstanediol and you form etiocholanolone and form 5-alpha-adrostanediol and you form androsterone.

What needs to be taken into account is that during all of this, the carbon skeleton of the testosterone does not change. The only thing that happens from here to here, the hydrogen atoms are added to the carbon skeleton.

The next thing that's basically observed, more than roughly, you always have, of course, the two-to-one ratio in chromatograms, if you look at samples, that peak is always twice the size of this peak.

Q. All right. And when we talked about in this trial, downstream metabolites, what does that mean in the context of this?

A. The reason why I put it up is because you are not completely analyzing blind in such a setting. You actually have an expectation of what's happening. You know what's happening, because the physiology of the metabolic pathways are relatively well understood. That's why you select these compounds as your key metabolites, and look for them, because you say, if the carbon composition of this molecule has been tainted by administration of the doping of exogenous testosterone, then you expect to see the things to basically filter through into the key metabolites.

Because they all have the same parentage, all these come from that, you have an expectation that the carbon-13 composition,

including the isotopic effects through the metabolic process that goes from here to here, should be more or less similar. It shouldn't be miles apart. It should be relatively similar.

Q. When you say the ones that should be more or less similar, why don't you point them out with your pointer?

A. These should be similar to each other, and these should be similar. In other words, you -- the variables you do report, whether that's in healthy controls or whether that's in study objects where the controlled conditions of the testosterone was administered, or whether that's in athletes that have actually taken testosterone illegally, you would expect these values to trace or track each other.

Q. Now --

A. So in other words, you have, in essence, sort of a troubleshooting. I have to say this, by the way. I'm not an expert in testosterone metabolism. This is, basically, what I have learned through publications by very respected people like Dr. Shackleton, Dr. Aguilera, to name just two.

And I would use this information out

of the peer-reviewed literature as a troubleshooting help, to say, basically, is their analytical result I received in line with what I should expect based on published results by other people.

Q. Okay. Looking at the next slide, do you see a rather dense chart there? Where did you get that from?

A. That table here on the left is taken straight from Dr. Shackleton's publication, Androstanol Steroids, and the table on the right is, in essence, because that is really very difficult to read, and I'm not saying I apologize for that. That's probably not much better to read either, but these data are taken straight from here. I just put this table in to show that those data were taken directly without any alteration from this publication.

Q. Do you have an opinion about LNDD's results and whether or not they're consistent with the paradigm shown in this published peer-reviewed paper?

A. If you use the various -- the subjects that are basically received at Day 3, according to the paper, of testosterone

administration -- if you look at the differences for the reported carbon isotope values, for the 5-beta-androstanediol and the 5-alpha-androstanediol, you see that the maximum difference in this period, if it even includes the drug-free period, the maximum difference between those two metabolites is 1.74 per mil as measured by Dr. Shackleton, or at least as reported by Dr. Shackleton in his paper.

So in some stages throughout, after

the testosterone application, that the values start very slowly to go back to the preadministration values you see in the instances where the difference is almost nonexistent, where the values are virtually identical.

Q. Well, all right. Did you look at any other papers, when you were looking at --

A. I looked at papers by -- at the paper by Dr. Shackleton -- I apologize -- by Dr. Aguilera, and the paper -- there were 50 -- there are 74 volunteers who were tested, 73 of them actually, there were signs of 73 that were reported.

And in this paper, the data

produced, in essence, to look at what is the natural variability. If you have basically 73 people from mixed origins, I think four or five different ethnic origins, you can see that the difference -- the average difference between -- between -- between these two is of the order of 0.7 per mil.

And even if you go down through the maximum and through the minimum, you will not find a difference between those two metabolites that's larger than 2 per mil.

MR. SUH: You can put the text up, now, Todd.

Q. (By Mr. Suh) All right. So is the maximum difference --

A. The maximum difference for these controls of the testosterone free, the derivative, is 1.39 per mil. And --

Q. Going -- go ahead.

A. And the 2.76, that actually comes from -- from the three individual positive athletes in his study.

Q. Okay. Going to the next slide, do you know what this is?

A. This is a figure taken from

Dr. Shackleton's study where he actually shows for the various subjects the results for the 5-alpha, the 5-beta androstanediol, and you can see in each case these two trace and track each other perfectly. There are occasions where there is a difference, but these differences are, again, not -- do not exceed 2 per mil at any point in time. The maximum difference.

Q. The maximum difference is about 2.5?

A. Yeah, but that is basically it. You are looking -- I was looking here in -- in the area that, actually, Dr. Shackleton describes as the area.

Q. Right in here.

A. So, seven days after testosterone administration. This point here to end, you are going -- you are going back almost to normal. But yes, it's 2.5 per mil at that point, but I was more concerned with the better values, but clearly showing the influence of the exogenous administration of testosterone.

Q. Okay. Turning to the next slide, 81. What is this? Who prepared this result? Did you?

A. I prepared this, and we have only

probably seen part of that slide in part, that information in a previous slide, so again, these are the various reports by Dr. Shackleton for Subject Two. These are the differences I calculated from that. These are the values he reported for the pdiol for the subject, and the differences for 5-beta 2 pdiol, and 5-alpha 2 pdiol, and I added this column, where I calculated the differences between these two differences. So these are the delta/delta values equivalents that LNDD reports, and I looked at the differences between these two delta/delta values.

Q. All right. Let's go to the next slide.

Did you prepare this?

A. Yes. That's the summary, basically, of the Respondent's A and B Samples, the differences reported by LNDD for the delta/delta values, for the pdiol 5-beta, for the pdiol 5-alpha, and I added these two columns, the ratios of 5-beta over pdiol and 5-alpha over pdiol, because in Aguilera's papers, which I used as a reference point, we have also reported -- I had a look at the ratios just to

see whether they would provide some information. But the main points are basically contained in these three columns. This is the difference. These are the delta/delta values, that we have the reports for his three positives, 5.9 on average for the pdiols minus 5-beta, and 7.9 for the pdiol minus the 5-alpha and the difference between the two is two.

So, in perfect harmony, in essence, with the Shackleton study.

Q. In other words, have you seen in any peer-reviewed study a difference of this magnitude --

A. No, I have not.

Q. -- between the alpha and the beta?

A. No.

Q. All right. Is it safe to assume that IRMS data is okay with closely related metabolites and their delta -- their carbon-13 differences do not yield comparison results?

A. I personally would not feel safe about that. The moment I would see such a result, before I would go any further, I would question my own work, and I would scrupulously go through the entire procedure again to make

sure that the data are actually true and reproducible before I would report them.

Q. All right. Is that what Slide 83 shows?

A. No, this shows, basically, the sum of the tables of -- of the paper for the three individuals that were basically positive for testosterone administration just, again, to show where the data came from that I used to compile the previous table.

Q. Let's turn to 84. Have you reviewed the Cologne Testogel study?

A. I had a look at the information provided in the USADA documents, that were sent to this Cologne Testogel study, yes.

Q. And what conclusions did you draw?

A. That -- that, quite surprisingly, actually, considering the application here is through the skin, that it was virtually in line with the report by Shackleton and Aguilera for IM injection administration of testosterone.

Q. "IM" meaning --

A. Intramuscular.

Q. Okay. Let's turn to Slide 85.

A. Again, in this slide that I have

prepared, the two underlying slides are direct copies from the USADA document. You can see again, so the green bars are prior to administration, and those green bars are post administration.

That administration reported for this subject as reported in the USADA document was six weeks' continuous application of Testogel every day, and the bars represent the week, the week average. So these are the -- and if you look at the 5 -- at the alpha diol, and the beta diol PD difference, you see that they track each other perfectly. A reference was made to these two points in the USADA brief that said basically, oh, in this location, the alpha diol and PD difference is basically positive, whereas the PD beta diol difference would be declared negative.

That is perfectly correct, but what you should be looking at the same time is actually the difference between these two values, and the difference here does not come even close to 2 per mil. With that line here, it's 3 per mil, and this line here, is just -- it's 5 per mil, and the bar doesn't touch it.

And that bar doesn't touch the 3 per mil line. So you have, basically, just 2 per mil or just, on the maximum difference, you can see between these two tracking metabolites is in the last week of the six weeks' administration.

And that is here and the maximum difference here, and that is basically just by looking at their bars, and adding on the side of caution, 2.2 mil difference. At any other point -- if you look at this point here, for instance, that reflects a value that is similar for that one reported for the Respondent's B Sample, the matching -- the in-time matching P beta Adiol difference is different from that one by 1.5 per mil.

And it so happens by sheer coincidence, the last value reported in the study is actually similar to the pdiol 5-alpha difference, delta/delta value for the Respondent's A Sample, namely, a quite high value of minus 6.1 per mil, and the matching, in-time matching corresponding 5-beta pdiol difference is 3.9, so the difference is, for this extreme case, is 2.2 per mil.

Q. And again, going back to 82, Slide

82, the difference in Mr. Landis' samples, Floyd's sample is --

A. Is 3.99 in the A, and 3.74, so
nowhere near 2.2.

Q. Let me ask you this: Did you read
in USADA's brief that perhaps the IRMS test
results could be explained by Testogel
application in relation to the results for
Volunteer P3 in the Cologne study?

A. Yes, that was exactly what these --
the last two slides are about.

Q. Why don't we go to -- what is it
that USADA did not mention when --

A. They reported a P3 result?

Q. Yes.

MR. YOUNG: Again, could we have the
data, if he wants, without the scripted text.

MR. SUH: It has nothing to do with
this slide. I'm just asking a question.

THE WITNESS: Are you asking about
the Testogel? This slide has nothing to do with
the Testogel study.

Q. (By Mr. Suh) Okay. What did they
forget to mention?

A. They basically looked at the two

samples, the two results as showed in that
slide, in the middle of the test, say, Oh, here
you have an instance where one metabolite pair
would give -- would give a positive result, the
other metabolite pair would give a negative

result. That is perfectly correct.

But there is another element of information in that -- in that chart, and that is basically the difference between the two. Because the difference between the two is perfectly in line with the difference we have seen in the Shackleton paper and in the Aguilera paper. And that is, for me, from my point of view, that is the real value of the information, to see that basically now three different studies -- three different -- at least two different types of application of testosterone, results in consistent, the differences between two delta/delta values of key metabolite versus an endogenous reference point, namely, andro diol.

There is not one instance reported where this instance goes beyond 2.2. So if I personally would be running this lab, and I would get a result of this major difference, of

virtually 100 percent out of anything published in the literature, if I include -- actually, the test results, the study, as far as I'm aware, has not been published as yet, or I haven't seen the paper, to be very careful.

This is a discrepancy. This would prompt me, before I'm on the phone, and say, Oh, this guy is positive, I would spend, I don't know how long in the lab, to make sure that that result stands up to scrutiny.

MR. SUH: No further questions.

MR. BRUNET: Thank you.

We will resume cross-examination after recess. We will break for lunch until 12:45.

MR. SUH: Dr. Meier-Augenstein, as we discussed with the Panel, has a flight that he needs to catch this early afternoon.

MR. BRUNET: And I would like to hear from USADA how long they expect to go with cross-examination before we do that.

MR. YOUNG: We are going to take some time on cross-examination, and since we just got his slide package after he started testifying, we're going to need to look at it.

MR. BARNETT: We would also just note that a number of French witnesses had to change flight plans, including coming back in the cab from the airport. So we all have suffered those inconveniences.

MR. BRUNET: Mr. Suh, the data that we have been going through over the past some two hours is quite detailed and heavy and has not been provided in advance to counsel for USADA, so we'll break for lunch and come back at 12:45.

(Recessed from 11:35 to 12:50 p.m.)

MR. BRUNET: Welcome back.

We'll resume the session with the cross-examination of Dr. Meier-Augenstein.

EXAMINATION

BY MR. YOUNG:

Q. Dr. Meier-Augenstein, what accreditations do you have at the Belfast lab? Who inspects you?

A. We're not an accredited lab; we do -- it's a university research facility.

Q. By anybody?

A. No, because there is no -- well, for research, as yet -- no requirement for

accreditation. We don't provide commerc- -- or I don't provide commercial services. So this is not a commercial facility. It's a research lab.

Q. And what research have you done looking for steroid metabolites in urine?

A. That part, as I said before, I have not done any active research on steroid metabolites in urine.

Q. And you haven't done any IRMS report looking for steroid metabolites in urine either?

A. No.

Q. Okay. Have you ever analyzed a urine looking for 5-alpha and 5-beta and pdiol?

A. No. We can go over this until the

cows come home. I've said this from the outset. I'm not an expert in steroids. I've not done any steroid work.

Q. You said that you had various instruments in your laboratory, but GVI was not one of the instruments that you were familiar with?

A. That's correct.

Q. And so that's the IsoPrime instrument that LNDD used; is that correct?

A. GVI has various instruments, and we

have actually various instruments. We have a prism. We have an Optima, and we have IsoPrimes.

Q. I mean -- were you done? I'm sorry.

And so in other words, you're not familiar with the software and the operation of the IsoPrime instrument?

A. No.

Q. Okay. Is there any respect in which you have to look at the WADA International Standard for Laboratories or the WADA technical documents in your day-to-day work?

A. No, not in my day-to-day work, no.

Q. None of that applies to you?

A. No.

Q. We've seen a bunch of the slides you've prepared. Were you paid to prepare those?

A. I wasn't paid to prepare the slides. I was paid for the time I spent -- I had to spend on going through the documents, as such, which is something I have to do, because otherwise I might actually get into trouble with my university if we spend time on consultancy. Our university has a very clear mandate of how

much time we have, how we have to -- how we account for the time.

Q. And what rate are you being paid?

A. At the standard university rate of 750 pounds a day.

Q. On the slides that we've put up, you said you prepared those. Is that right?

A. Yes.

Q. Did you send drafts back and forth with Counsel of those slides?

A. I didn't send them back and forth. Whenever I prepared the slides or there are several slides, I send them to the counsels.

Q. And did they send them back with their comments?

A. No.

Q. So there's -- no comments from Counsel were incorporated in any of those slides?

A. In the slides that I prepared,

there's -- nothing has been added by the counsels other than the reference numbers that you asked for.

Q. And those are the slides we saw today?

A. Yes.

Q. Are there slides that you left out of the presentation for today, like, talking about linearity?

A. I didn't leave anything out. But that was a decision made by counsel, because we are hard-pressed for time.

Q. You agree that you ought to do linearity-based peak height, right? You ought to compare linearity?

A. You don't do peak height. You should be using peak area. The only -- the only time you can use peak heights if you are relying solely on reference gas pulses --

THE REPORTER: On reference gas --

A. -- reference gas pulse, which is a rectangle, it is a section of the peak; it looks like a rectangle. And because that rectangle is a consistent gas, or is comprised of a gas with a consistent -- where you can approximate what the instrument does by looking at the peak height.

But that is not the best way, in my

personal opinion, to do it. And as it so happens, on one paper Dr. Aguilera actually

agrees with that, he does the linearity checks on samples that he can check. And the moment you do it on samples, you have to go for peak area, because the peak height is not a representation of the information contained in the peak.

If you would -- if you would only look at the carbon isotope information under the peak heights, you would ignore, basically, let's say, 90 percent of the peak, which you can't do, so you have to look at the entire peak area.

Q. In terms of the range of measurement in your linearity tests --

A. Yes.

Q. -- where your linearity tests at this level, at the top, and this level at the bottom, you're telling me that what you ought to do is look at the areas to make sure that the peak areas are in between, or is that --

A. If you check the instrument for linearity with a view of using it for samples that have to run through a gas chromatograph that hangs up if you get this sort of peak area or bell shape or triangular shape, whatever you want to call it -- you have to compare like for like. It's called the principle of identical treatment.

And that means the best way of insuring that the instrument performs to spec within the confines of what you want to do, you actually are well advised -- and as I've just said, for instance, one reference I can give you is Dr. Aguilera, who actually asked that in one of his papers, as conclusions, that -- no, that's actually not quite true -- he puts it in his experimental section -- that he averages split per run on samples of varying concentration to cover -- to cover the range of the analysis he was going to do. And this is exactly what we should be doing.

We use the sample of a lucent series that covers the range and, ideally is actually one below of what you want to do and slightly above what you want to do just to be sure that what you are doing sits comfortably in that range.

Q. And what Dr. Aguilera was talking about, he wasn't talking about linearity at all, was he? Wasn't he talking about --

A. No. He was talking about linearity.

It's actually in his paper. Let's bring a copy of his manuscript -- paper.

Q. Would you let me finish --

MR. SUH: Don't cut off the witness.

A. Bring me a copy of the publication, and I will show you the words.

MR. BRUNET: Doctor, Doctor, if you would just let Counsel finish a question, and then answer it, please.

Q. And you'll get to say it again, I promise.

What I was asking you is, in Dr. Aguilera, was he talking about linearity, or was he talking about the range of delta values in target metabolites compared to a reference compound like a mix --

A. He was talking about linearity tests.

Q. -- like --

Okay.

I've drawn what are two peaks that have good separation. Would you agree with that?

A. Yeah. That's -- you didn't show me the baseline but...

Q. Sorry.

And when you were talking about the influence of one peak upon another, you referenced Dr. Brenna's paper; is that right?

A. I used the figure out of Dr. Brenna's paper purely to make a point. It was a very nice figure that illustrates in essence, what you had off, depending on what the peak, what the peak overlap you're dealing with.

Q. And what you were saying is that what Dr. Brenna's paper tells us is that when there is this kind of peak overlap, you would have this kind of effect?

A. This is not what I said.

Q. Okay. Then I want to make -- I want to be sure what you said.

A. I used a completely different example. I used an example of a paper published by Ricci, Merritt and Hays that actually show data that this is what yoU see. I used the figure out of Dr. Brenna's paper purely for illustration -

THE REPORTER: Wait. "I used the figure out of" --

A. Dr. Brenna's paper.

THE REPORTER: I'm sorry, which paper?

A. -- Dr. Brenna's paper, purely for illustration because my -- I wasn't quite sure that whether the way I sketched the similar schematic, like you just did, whether that was sufficiently clear.

Q. And what Dr. Brenna's paper says, and it's based on more detailed research than Dr. Hays' paper, is that you would expect this effect; isn't that true?

A. I don't have that paper, actually, no, especially since Dr. Brenna's paper in that particular paper deals with his work trying to deconvolute peaks, something that no one else can do but him so far, as I'm aware.

No software manufacturer has incorporated the algorithms that he developed for peak deconvolution.

Q. Well, I'll let you look at that paper. The Brenna paper. What exhibit is that?

MR. BARNETT: Mr. Suh, did you mark the Brenna paper as an exhibit?

MR. WEISS: The Brenna paper, if I'm not mistaken is already -- GDC 1297. It's

already a GDC exhibit.

MR. SUH: Can you just say the title of it, so we make sure we're talking about the same thing.

MR. YOUNG: Curve Fitting For Restoration.

MR. WEISS: It's GDC Exhibit 1297.

MR. YOUNG: Thanks.

Q. (By Mr. Young) Do you have that paper in front of you?

A. Yes, I have.

Q. Go to Page 1298 of the paper. The pages are marked on the bottom left-hand corner.

A. Mm-hm.

Q. And you'll see a Figure 5. Have you got that?

A. Yes.

Q. I'll blow that up first.

Isn't it true that in the top square of that figure marked EE, it shows that the substance that comes out first has a lower value; i.e., more negative, than the substance that comes out second.

A. I can't see anything in that document. Which data points?

Q. The line that I've marked Number 1 --

A. Mm-hm.

Q. -- comes out first and would correspond to the effect of causing this first peak to have a lower delta value than line Number 2, which would correspond to the second peak.

A. Yeah. But this refers to data obtained by various models, whereas the paper I quoted is actually observation, where people have actually injected things and doesn't know what the observation is on all the data. And if

I read this correctly, the last part, where the largest difference is the 95 percent confidence limit, almost -- causes all those four points that you just pointed out to overlap, so...

The problem is that, at the moment, we don't know. My point was that that is one possible effect. And unless we have methods in place that allow us to deconvolute peaks, clearly, we don't know.

Q. So, if there's an overlap, you don't know whether the effect is going to be this or this?

A. I know from my -- from my experience in the work I have done that that more or less coincides exactly with the paper I've quoted: That in the majority of cases, you see the first peak become more enriched and the second peak become more depleted, which is absolutely in line with what the peak composition dictates. Because the front part of the peak is more positive, and the end part of the peak is more negative.

So if you move more negative carbon into the next peak and you're cutting off at the same time part of its positive part, you get a disparity that looks like that: more positive on the first, more negative on the second.

Q. So you're disagreeing with Dr.

Brenna's study.

A. I -- I disagree -- no. This is a modeling paper. This is not -- this is not a paper like we could expect to be, just to make experiments and report observations. I'm not saying that he didn't make this observation. I'm just trying to say that the algorithms, these are the values that came out.

It's just not in my experience. I

don't have access either to the equipment that Dr. Brenna uses nor to the software tools that he describes here, which I find highly interesting. And I made several remarks about those models in my papers, because I felt it absolutely necessary that that one should attract more interest by the instrument manufacturers to see whether their software can actually be upgraded or can be made to include this really exceptionally good work.

Q. We've anticipated --

A. So far -- so far, none of the manufacturers have done that. So we're left, as users, with what we can buy. And unless we have, basically, access to machines and people who can actually come up with these wonderful ideas, we should use this. We are stuck with what we've got. So I can only tell you what my experience is, and my experience of now, 16 years, I think, in this business, is that, if I have peak overlap, as a rule, that the leading peak appears more positive than it would be than the tailing peak or the trailing peak.

MR. YOUNG: James, could you put up Page 348?

Q. (By Mr. Young) If you want, I can give you a hard copy to look at. Are you happy looking at this?

A. I'm happy looking at that, yeah.

Q. Okay. When you look at the 5-alpha androsterone peak, do you see any interference with that peak?

And let me -- let me start with an even more simple question: Is this a good chromatogram or a bad chromatogram in the area of the 5-alpha?

MR. JACOBS: Which 5-alpha?

A. Which 5-alpha are you talking about: The internal standard or the metabolite?

Q. The metabolite.

A. The metabolite. For the GC/MS chromatogram, this is acceptable. But for a GC/MS -- this is a GC/MS chromatogram you're showing there.

Q. Right. And do you see any interference with that peak?

A. There is a small peak sitting

between the 5-beta and the 5-alpha, and there's something in the front part of the 5-alpha that could almost be regarded as a tiny shoulder.

Q. The front part of what? Are you talking --

A. Of the 5-alpha androstenediol. The bottom of the peak doesn't look very symmetrical. I mean, that is really minor. We're talking about small effects.

Q. And let me follow up with the small effect.

If this little peak -- I need my glasses to see this -- this little peak right in here were to be included in the IRMS measurement of the 5-alpha metabolite, that would have a small effect?

A. That would have an effect. When I said "small effect," I was purely referring to the peak shape of the 5-alpha because there is some -- it's not quite clear from that graph that I've been looking here at a slope in the baseline or whether there's actually something that almost appears like a shoulder within the peak. That was -- well, that was my comment about a smaller peak. But in answer to your question --

Q. But answer --

A. -- about this peak, if that would

move completely into the 5-alpha, it will have an effect on the other number whether we can measure it, what the effect will be on the basis of this is not predictable, but you cannot completely exclude it, and this is exactly what I said this morning.

There is an effect, whether its measure will be -- will largely depend on what the native carbon isotopic composition of that small peak will be.

Q. Okay. Is there anything that you find in human urine that would have a carbon isotope ratio value of below minus 40?

A. Who is to say that that peak comes from the human urine? Can you tell me this peak doesn't come from the matrix interference that has anything to do with this funny, let's say, forest of peaks down on the left? We don't know. We haven't even got the peak identification for this peak; we haven't got a mass spectra for this peak. Where is this peak coming from? It can be from the urine. Yes, perhaps. I don't know. It can be part of that.

Considering that your baseline value of all of this matrix interference is unbalanced, minus 54, in cases minus 129, as per the data sheets that was used by LNDD, don't you think that minus 129 might have a large effect?

Q. So you're saying that this peak could have --

A. Could have an effect. And the only way to quantify it is if you would know what the value of this peak is.

Q. I'll finish my question.

You're saying that this peak could have an effect -- could have a carbon value of minus 129.

A. Yes, possibly.

Q. Tell me something in nature that has a carbon value of minus 129.

A. It doesn't have to be in nature, my dear friend. If you have incomplete combustion, you can produce virtually any number on this -- on the carbon scale and down to where you see it -- you would never see in nature.

When we look at combustion efficiency, to find out what the optimum dimensions and the optimum feeling for combustion are, we use very standard -- we use alkanes -- not too dissimilar to the alkanes

that LNDD uses as their mix IRMS standards. We produce values down to minus 700, and, of course, they're completely unbelievable. They are a result of incomplete combustion. It's an artifact.

This is not a question if this is a natural peak. This is not a question of whether the peak comes out of the Respondent's urine; it's a question of we do not know what the isotopic composition is, and it's completely irrelevant to speculate. We don't have this information.

And it doesn't matter whether you find in nature in a fully integrated completely combusted peak anything below let's say minus 70. You can find things up to minus 70, but minus 129? Yes, I would agree. To find this in nature, probably not, but no one made any comment that this is a natural peak. This could be matrix interference considering your baseline is so low and these are reported values from your lab -- or not your lab, but from LNDD. You have no way of knowing.

Q. Let me ask you this: If this was a minus 70, how much would it change the delta

value of the 5-alpha peak?

A. For that, you would have to know what the peak area is and then -- and then make an assumption. And say, fine, that, for simplicity's sake, assume we are just looking at the carbon outside of the source and then come up with a number of how much is that in percentage of peak area to the percentage of that peak area.

Q. Well, let me just ask you. In terms of peak area, is this -- this, compared to this, 1 percent, 2 percent?

A. Hard to say. It's not even an available peak. It sits on the tail of the preceding peak. I would -- I would not care to come up with any guess. I mean, we can say it's not 50 percent, surely. But --

Q. Yes, we could say that.

A. But whether it's 1 percent or 2 percent or 3 percent, hard to tell you. You would really need to make -- you need to have the data. It's absolutely impossible to speculate.

Q. As a matter of fact, if it were as high as 5 percent and it was minus 70, to use

your number --

A. An example.

Q. -- it wouldn't change the delta value of this peak more than a delta unit, would it?

A. Do you have a calculator? I'll calculate it for you.

MR. YOUNG: Do we have a calculator?

MR. BARNETT: I come pretty well-prepared, but not with calculators.

A. Let me see if I've one. I need a pen and a piece of paper.

(Dr. Botré handed him a calculator.)

MR. YOUNG: Thank you, Dr. Botré.

A. So what did you say? Minus 70?

Q. (By Mr. Young) Yes.

A. (Witness calculating.)

Where do you change the slide?

(Dr. Botré showed witness.)

A. Aha. Thank you.

Q. So for your calculations, you're using minus 70?

A. Times 5 percent, it would be -- that would be minus 3.5 minus 5 percent.

Q. You're saying that --

A. I'm not finished with it. Could you please give me a piece of paper? And a pen, please.

So, what assumption do you want to make about the peak?

Q. Let's be --

A. Minus 28?

Q. The peak is -- let's go to the next page. I think it's one -- the peak is minus 31.88, but we can, to make it easy, just use -- we can use 31, 32, whatever you want to use.

A. If you assume the peak has a native value of minus 28, and you say that makes 95 percent of the new peak --

Q. Whoa, whoa -- excuse me for interrupting. Why would you assume it has a minus 28 when the numbers -- back again --

A. Because you want to calculate what the contribution is to its natural value, not what the contribution might be to the value at the moment trying to discern has this been changed by an overlap or not. So if you look at the peak right next to it. The 5-beta, what is that? Minus 28.79?

Q. Yes. But let me -- let me -- let's

find a 5-alpha where you don't have any question about peak overlay.

MR. SUH: I object. A hypothetical was posed and the witness is trying to answer the question. Let him answer the question. He's got the calculator right in front of him, and he's been given a set of assumptions. He's got a calculator, and he's ready to run.

A. I happen to agree when it's in the study slide, Dr. Shackleton's and Dr. Aguilera's, that the 5-beta and the 5-alpha in their controls are within one per mil of each other.

Q. Go ahead and run your

hypothetical --

A. On that basis --

Q. -- and then I may ask you to rerun it.

A. So minus 28.75 for one peak and minus 70 for the other.

Q. Okay.

A. Okay. A peak that would have a native value of minus 28.75, but that now becomes a peak that's 95 percent of this value at 5 percent of the minus 70, would have now a

combined value of minus 30.8125, which is --

MR. BRUNET: Mr. Young, could you zoom out a little, please.

THE WITNESS: -- a change of two per mil, or 2.0.6, if you want to be ...

MR. BRUNET: Would you move up the paper, please.

Q. (By Mr. Young) And that's using --

A. 5 percent.

Q. -- 5 percent --

A. Yes, that's using 5 percent.

Q. -- and that's using a value for the contributing peak of --

A. Of minus 70.

Q. -- of minus 70 --

A. Yes.

Q. -- delta units.

MR. SUH: Mr. Chair, at this point, we'd like that exhibit marked and entered into evidence.

MR. YOUNG: I'd be happy to do that.

MR. BRUNET: Sure. It's acceptable. What number are we at?

MS. SLOAN: 120, I believe.

MR. SUH: And perhaps we could just

complete it and have that minus 2 per mil figure written right on it for future reference.

(Mr. Young added the information to exhibit.)

MR. BARNETT: 120.

MR. CAMPBELL: Can we get copies of it?

MR. YOUNG: Do you want us to make copies of it and bring it back?

MR. BRUNET: Yes, please.

Q. (By Mr. Young) You've talked earlier about chromatograms that you would find acceptable in your laboratory.

A. Yes.

Q. All right. I don't want to -- if you're done calculating. I don't want you to be able to --

A. I'm just trying to shut it off.

Q. I want you to be able to --

MR. BARNETT: We'll call this

Exhibit 121, Mr. Chair.

Q. Take a look at the figure on Page 67 of your paper.

A. Yeah.

Q. Do you use that as an example of a

bad chromatogram?

A. Yes.

Q. And then in Figure 3, you published this chromatogram, and that's an example of a good chromatogram.

A. Mm-hm.

Q. Would you say that there are tails on these peaks?

A. Yes, sir, there are tails on these peaks.

Q. And the tails run into the peaks next to them?

A. The peaks next to them, actually, if you look very close, there are references in this part of the change and not native peaks from the sample. That's why they're marked R.

Q. And so where does the tail end on this particular peak?

A. If you look -- if you look, actually, at the scale that you've now obscured by zooming in, you would see --

Q. Okay. I'll back up.

A. -- the maximum you'll see -- that

the maximum of the largest peak is probably just about 4.6 nanoamp. So that is basically at the

lower end. And that's my -- if you, then, look at the next, you can see the next two scale points, from the bottom, to the next slide, no, no -- no, up. From the bottom of the peak -- from the bottom of the bar, up to the next scale, you're actually jumping by a factor of 10. It's from 0.01 nanoamps to 0.1 nanoamps. So you're actually -- this is actually a blowup. This is a disproportionate increase of the signal just because of the scaling of the Y-axis.

Q. Tell me -- And I can give you a laser pointer. Do you have one still?

A. Yeah, here.

Q. Where's this tail end on this peak?

A. Which peak are you looking at?

Q. This one.

A. This one has not -- hasn't really a tail because it's a reference point, although it looks like a peak. But that has to do with the fact that that part was not injected, that it clinged to the source, where it was injected into the combustion interface, so it has been -- so it has spread out.

Q. Where does the tail end on this

peak?

A. Probably goes to -- probably something like here, but again, it's -- I would say somewhere around here.

Q. On the other side of this other peak?

A. Which other side of which peak?

Q. Okay. Where's the tail on this peak right here?

A. On that one that's called 880?

Q. Right.

A. Yeah. That ends more or less right here. That's where the reference points are going after, but I think -- can I remind you again that this is a tenfold -- this is a tenfold increase from here to here. So what you're seeing is, to a degree, an artifact of the blowup. If that's -- if that thing would be showing on the scale of, let's say, 10 nanoamps, you would actually not -- you would actually not be able to see any of these things.

Q. And what is the time period over which is measured the beginning of this peak and where you've pointed to the injection of the reference gas?

A. Let me just have a look. It's not

at the ending of each peak, but you would probably look at something in the bold part of -- well, it's hard to say. I would have to --

Q. What are you looking for?

A. I'm just trying to get a rough idea from the time -- from the time from here to here, and I can't really see where the lines come down.

Q. Do you want the exhibit?

A. Hm?

Q. Do you want the exhibit?

A. Oh, right, I have the exhibit.

Now, even looking at the exhibit, I can't actually tell you. That was more -- that chromatogram was put in to show what you can do -- how you can achieve referencing the sample by getting a reference gas point as in -- that are actually like for like, that show the same peak shape or similar peak shape, closer than what a rectangular pulse will do and, also now, actually, to match the peak area closer than you can do with a rectangular pulse.

But that's not necessarily the best

example of whatever. This is not an application example, is what I'm saying. This is a research example.

The peak -- the peak height, I mean,

the formulas, because of the exploded scale and the timeline, I couldn't -- I could only give you a guess, If you are looking for a guess, you're looking at something about 40 seconds to 60 seconds. But that is a -- that is a variable that tends to really show off more the reference -- what you can do with this modified reference gas injector. This is not meant to be an example of how you would analyze a complex fatty acid chromatogram.

Q. So it's not supposed to be an example of a good chromatogram?

A. No, it's -- I mean, it's as much of a good chromatogram because all peaks are baseline separated. I personally, for -- for a real time sample, I would like to -- I would like to see sharper peaks than that. But you're here in the hands of an effect that you -- that is basically the same across the board that, at the moment, you convert a high molecular weight from material, from whatever,

100 daltons, 200 daltons, 300 daltons weight into a low molecular weight gas, CO2, which spreads out much more easily, and under that scale, that is much more visible.

So, even though you're looking at that, on the exploded scale, if you would actually run the peak, or the peak detections over it, it will stop the peak somewhere here. And the only thing I can tell you from memory, that -- on that -- on that study, that used to be in the area of 40 to 60 seconds, which can be improved upon. But I mean, this is -- we are not -- this is, basically -- yeah, this is an example that was more aimed at showing -- at showing this mobile method of reference gas injection.

Q. Is what you were saying when you were talking about the scale, that when you blow up chromatograms it can make them look worse in terms of tails or interfering peaks?

A. Yes, to a degree you will emphasize the peak tail. You will emphasize small peaks; that's true.

Q. How many different kinds of gas chromatograph instruments do you have in your

laboratory?

A. Only one --

Q. Only one kind, one like Hewlett-Packard?

A. We've got Hewlett Packard's trace gas, Agilent, I think we even have an old Varian. Probably, four -- four or five different types of GCs.

Q. Okay. And if I took an internal reference compound like 5-alpha androsterone --

did I get that right that time -- 5-alpha androstenol AC, and I ran it in two of your different GC instruments, would you expect me to get the exact same retention time?

A. Not the exact same retention time, no. But if you used the same temperature break and the same helium flow, the same column, or, at least, let's say, because you can't have the same column in two instruments at the same time, so you're using the same column time from the same manufacturer, even ideally from the same batch, you should, within reason, such as, for instance, the plus or minus of one or two minutes, you should get the same retention time, yes.

Q. Let me break apart the pieces of that.

That on your two GC instruments, you're running the same column?

A. Mm-hm.

Q. That's one of your assumptions.

A. Yes.

Q. And that you're running the same temperatures?

A. Mm-hm.

Q. So that's another assumption. And what other assumptions did you build in there?

A. The carrier gas flow. The carrier

gas flow, the helium flow.

Q. And that all is the same. But --

A. Within basically the -- within, basically, whatever the instruments allow me to control.

Q. But --

A. That's why -- that's why you will have slight -- but that's why you will have slight differences in the retention time.

Q. And the slight differences in retention time between two different instruments, as opposed to within one

instrument, can be a lot more than 1 percent; isn't that right?

A. The retention -- the retention -- the retention -- the absolute retention time is mixed up -- is -- can -- well, it's hard to -- it's hard to say. You would have to do the experiment. But considering where you're going with this, this is exactly the reason why you use validity retention times: to basically try to eliminate that uncertainty that you have. Because even if the two gas chromatographs would be from the same manufacturer, you would probably still have slight differences.

Q. And if you're running -- if you're running on two different instruments, even from the same manufacturer, you wouldn't expect the retention times to be within 1 percent? It could be. It could not be.

A. No. You can't -- you can't -- you can't go for an absolute retention time of 10 percent; you really have to use minutes to say, Will it be within one minute? Will it be within half a minute? Will it be within ten minutes? Because depending on where your peak elutes, the 1 percent makes quite a difference to the

difference. If your peak comes early, 1 percent is not much. If your peak comes late, then 1 percent can be quite a lot.

Q. Make sure I understand that. So --

A. One percent of 20 minutes is two minutes, but 1 percent of five minutes is half a minute.

Q. I see. So if your internal standard is in the early part of the sequence, you would expect bigger fluctuations in retention time?

A. No, actually, not. The earlier part, you would expect less. If it comes earlier, you really would -- would really expect, yeah, a minimum shift.

Q. Okay. So let me ask the question on an internal standard that comes in the early part of the injection sequence.

A. Mm-hm.

Q. Between one of your Hewlett Packard

GC/MSs and another one of your Hewlett-Packard GC/MSs --

A. Yes.

Q. -- you wouldn't be at all surprised to see retention time differences out of those two instruments of more than 1 percent?

A. I want -- I don't --

Q. You never looked?

A. You don't -- you don't tie down on one particular peak. If you -- the moment you want to compare with two instruments, you're looking at a relative retention time. This is the only safe way of doing -- of retention index. That's the only safe way of doing it. This is exactly why you don't use retention time. The moment you run on two different instruments, in order to have comparison, to safeguard against such fluctuations that are beyond your control, this is why you use relative retention times.

Q. And you use relative retention times within each of the two instruments. So, for example, when you have --

A. No. No way to answer that. No, we don't. This is the whole point of having relative retention times, so you can compare between two instruments.

Q. Did you look at --

MR. BRUNET: Mr. Young, please zoom out.

MR. YOUNG: Oh, sorry.

Q. When you looked at the laboratory results, did you compare the retention times and relative retention times that were reported for the GC/MS instrument?

A. Yes.

Q. Okay. And they were all very consistent, right --

A. Well --

Q. -- they were all within --

A. -- they better be, because they're all run on the same instrument.

Q. Right.

A. It's almost -- it's almost, I wouldn't say, unnecessary, but I mean, if they would not come out very, very close together, you would have a serious problem.

Q. And that tells you that your instrument, when it identifies the retention time of the internal standard, it's identifying the retention times of the other metabolites or analytes in question.

A. On that instrument, yes.

Q. All right. And then, when you looked at the retention times and relative retention times on the IRMS instrument, they were all very consistent too, weren't they?

A. Yes.

Q. And so the comparison that you were making was not within a particular instrument?

A. No, that's incorrect. This comparison would have been the instruments -- within the instruments as well as between the instruments.

Q. And -- well, within the instruments, there was great consistency within 1 percent?

A. Yeah.

Q. And so your whole point is that when you compare retention times and relative retention times between two instruments, that's where you got your 6 percent variation?

A. That's where LNDD did, in fact, have a 6 percent variation, right. And this is exactly what they shouldn't have. Because what you do on the left instrument, that you just catch -- that actually identifies your peak. So what you do on the other instrument needs to match what you're doing on the first instrument within the specifications. Otherwise, you have no identification of the peaks.

Q. Well, let's talk about --

A. This is the whole point of relative retention time: so you can compare between instruments. What you have to do, even if you can't -- even if you don't have the same -- exactly the same GC, you definitely have to use the same column, the same temperature profile, the same helium profile.

The moment you don't do that, you're going to be a problem -- you're going to have a problem. I can't actually tell you exactly where the problem lies. I can -- I can -- I can make assumptions. But I can tell you -- I can tell you that in this instance, your relative retention times on the GC IRMS do not match the relative retention times on the GC/MS, and that is your instrument that identifies the peak.

And since you're out -- really out of the specification, you have lost your anchor on the GC/MS.

Q. And --

A. Because the relative retention times, the whole purpose of those is to compare analysis influence-free of manufacturer spec variations between two instruments. That is the entire purpose.

Because on a mass spectrometer, you can actually make do without. Your mass spectrometer identifies the peak by virtually recording mass spectra. There's your peak identification.

Q.   Well, if the whole purpose is -- of relative retention times is to compare two instruments, in most of the analyses that the world does when they just use the gas chromatograph mass spectrometer, then why on earth would they use relative retention times?

A.   That's the basis -- you basically have two -- you have two-dimensional information that really gives you absolute certainty that what you're looking at, on a one-to-one basis, is exactly what you think you're looking at.

Q.   And so that everybody's clear, when someone's just doing simple GC/MS analysis, they measure relative retention times, correct?

A.   Yes. They can.

Q.   You do it all the time.

If you -- do you use GC/MS all the time?

A.   Yes.

Q.   And so you measure a relative

retention time.

A.   You measure absolute retention time, because if it's within the same instrument, you have a good expectation of what the variation should be. Since we identified the peaks by mass spectra, you can immediately tell if a peak has moved beyond what is reasonable. And then -- and then -- and then remediation is required. You have to -- you have to figure out, has the column aged, has something changed, whatever, has some change occurred, either dramatic -- or a sudden leak, anything that could influence it. So you use that. Of course, you use it. But in this instance, the purpose is twofold.

You have -- you have the application on the GC/MS, and then -- which gives you the peak identity, and you require that anchor, you require that reference point to identify, to iden- -- to truly identify the peaks on the IRMS. Because, there, you do not have the second level of information, the second dimension, that a mass spectrometer gives you.

The IRMS destroys the sample. It combusts it into CO2, so the signal that comes

out the end is a CO2 signals and not a mass spectrum.

So here you need the relative retention time, not only to quality control with one instrument, you need it to anchor the peak identification of your second instrument. And this has clearly not happened here. There is no two ways about it. You're 6 percent out. Way out of spec.

Q. And the criteria that you're talking about, if you were to apply it to your GC/MS instrument where you measure both retention time and relative retention time --

A. And mass spectra.

Q. GC/MS?

A. On a GC/MS, you would call it mass spectra.

Q. And that would apply to the one instrument, and you're saying that it ought to apply to two instruments as well?

A. If you use the one instrument to identify the peaks that you analyzed on the second instrument, yes, it has to apply; otherwise, how do you identify the peaks?

Q. When -- you were also talking about

the quantification of the internal reference standard as well, weren't you?

A. No.

Q. So you never talked about the delta units?

A. At some point -- this is not quantification. The delta unit gives you -- gives you an isotopic composition. But that doesn't quantify a peak. Quantifying a peak is if you say, Oh, this is whatever, five nanograms per microliter. That is the quantification, the amount, the Carbon 13, Carbon 12 ratios, it's a relative amount of Carbon 13 to Carbon 12. It doesn't quantify a peak.

Q. Let me ask you --

A. It's a peak -- it's a compound characteristic property.

Q. Let me ask it an a different way so that we're on the same page.

Did you also talk about the C-12, C-13 composition of the internal reference standard, the delta value, at the top of the peak?

A. This morning?

Q. Yes.

A. Yes, I did.

Q. And I think what you said was that the quantification -- excuse me -- that the C-12, C-13 ratios in that peak, those peaks, fell outside of the Paris laboratory's acceptance criteria?

A. On certain -- on certain analyses of the sample, of the A and the B Sample, yes.

Q. And were you aware that the Paris laboratory doesn't use the internal reference standard as a delta value comparison? They use it for time, but they don't use it --

A. I know they use it -- I know they use it for time. But you can, and I think that, actually, one of your witnesses said that this is a very good way of quality controlling. You have an internal standard in your GC IRMS sample, your quality controls, your GC IRMS, and that's on the spot. But for example -- and, yeah, that's a very good idea.

Then let's have a look at those values that were identified by the lab and see whether those values, when they are actually part of the real sample, are on the same line as when they were run as isolated as part of a

mix -- of the mix cal acetate mix.

And it would be -- honestly, if it would have been on the same line, that would have given me a little bit more confidence in the results. But they are not on the same line; they are outside.

Q. Did you hear the testimony of the witnesses from the Paris lab?

A. No, I didn't hear it.

Q. And if they told you that they don't use the internal reference standard delta value for any comparative purpose, would your comments about it being outside of --

MR. SUH: Object. Mischaracterizes the testimony. If he's going to use the prior testimony, he can use a transcript, page and cite. If the counsel wants to provide us with the transcript cite.

Q. Let me ask it this way: I'll put it as a question.

The delta value differences that you pointed out as being outside the Paris laboratory's acceptance criteria --

A. Yeah.

Q. -- would only be outside that

acceptance criteria if they used the internal reference standard for comparative delta value purposes?

A. No. The problem is that, how have they actually identified internal standard in these samples? Since they don't have a mass spectra information, since the absolute retention time of the internal standard that, as you just pointed out, is the time marker, it's not identical to the -- not even close to the one retention time called out on the GC/MS, but out by four minutes.

I wondered how on earth did they actually identify, out of five or six peaks, this particular peak to be the internal standard that they use as anchor for the relative retention time on the instrument. And the only idea that I could come up with is, Gosh, they know what its delta value is, so they have an expectation which of those five peaks could be this internal standard by looking at its delta value. And then I thought that, within those runs, two of those values were actually outside, so I tried to -- I questioned myself: How on earth did they still identify this peak as their

internal standard, if your value doesn't actually meet their specs?

If the spec says the value has to be minus 30.46 or plus or minus 0.45, and the value comes out minus 31.64, on what grounds do you say, This peak is my internal standard?

Q. And where is it in the Paris laboratory's specs that says when you use the internal standard in connection with identifying retention time in a blank urine or athlete sample that it has to be within a particular delta value spec?

A. How on earth would you know it is the internal standard? How do you define that? Can you explain this to me? I'm actually baffled. How do you know this peak out of five is the internal standard?

Q. So my question was, how would you -- where is it in the specs that says that it is out of spec, if those delta values are different? Do you know --

A. It has nothing to do with the specs. How do they identify the internal standards?

Q. I take it --

A. I -- I don't know. I don't know how

they do it. Because, as I would say, there's nothing in the specs, so I don't know. Is it divine intervention or they just pick one? How do they -- how do they know which peak is their internal standard?

They must have -- they must have some -- some criteria to say, Oh, let's see, there's one peak at this time; there's one peak at this time; that's not the peak at this time. They're also 20 seconds apart. How do they choose which of those it is? I don't know.

And you're quite correct. There's nothing in the specs that actually tell you how to do it. So, I'm -- I'm -- I'm amazed.

Q. My question --

A. I'm -- I can only -- I can only -- I can only, at some stage, to come up -- to come up with some conclusions about what they're doing, say, Fine. Let's, for a moment, use what they got -- what they say and see how this works out, and then relate it to something that we actually know with certainty what they're talking about, and that is your GC/MS.

That gives you your peak identification, first and foremost, by its mass spectrographic -- spectroscopic fingerprint. And once you have identified it by virtue of its mass spectroscopic fingerprint, you say, Okay, we now know what this peak is. Let's see what the retention time is for the peak, what it is. It works this way, not the other. You don't say, Oh, this is the retention time; oh, no, let's look at the mass spectra please. No.

You look at each peak to see by selective ion monitoring, does it have the data qualifiers. This spectra now is uniquely identified as this compound, and let's -- okay, now, we know this peak is compound X, or your internal standard, and it appears at this retention time. This is the sequence of identification.

And on your IRMS, you have not the information that the mass spectra would give you. So what other information do you use to identify an unknown peak amongst five other unknown peaks? That was the question I was asking myself. It is completely irrelevant what's in the spec. I tried to understand how they do it. And this was my only explanation. They must use -- they must use the delta value

because that's the only thing they know about it.

And then I noticed that several of those delta values are way beyond what they said, themselves, what they consider as an acceptable value. And I was completely mystified at that point, in which case, how do they choose that?

So, it's -- this is the question, yeah. How did you do it? How did you identify the peaks? And yet I'm not clear to understand how the peaks were identified. And no matter how you reask and reask the question again, they are not -- we are not swearing that sample.

Q. And that is your answer to my question of: Where in this fax does LNDD say they quantify the internal reference standard?

A. How do they identify, actually, that this peak is the internal standard? That's -- that is the question.

Q. Take a look at Exhibit 34, please. And I'm not going to spend much time on this because you've already told us that you're not an expert in steroid metabolism.

And this was --

MR. YOUNG: Do we have a copy of that?

James, it's Page 15 of that study.

What I want is these two, the

bottom, enlarge these parts.

MR. PADILLA: The bottom?

MR. YOUNG: The bottom and the one above.

No, go down. The bottom one and the one above. And the bottom two.

Q. (By Mr. Young) You had referred to one of the volunteers in this study for the proposition that you never see in, I guess, the three studies that you've looked at, including this one, a difference of more than two in the 5-beta and 5-alpha at any point in time. But for this volunteer P9, what would you say that difference is on measurement Number 3?

A. On page -- on the bottom of Page 15?

Q. Page 15.

A. Yeah.

Q. And I'm --

A. This is the one I'm looking at. Figure 21. Right?

Q. Right.

A. Is that the one you're looking at?

Q. Hang on. That's exactly what I'm looking at.

A. This one. Yeah. Uh-huh.

Q. This number is what: 2.75?

A. Yes. And?

Q. And this number is a little short of

six, right?

A. Yeah, okay. And your point?

Q. When you looked at your three studies and you said that there were never more than a two difference between alpha and beta --

A. Yeah.

Q. -- did you notice this particular data point?

A. Yes, I did.

Q. And that's a lot more than two, right?

A. Yes, indeed. But as it so happens, this is not a difference between pregnanediol and 5-alpha or pregnanediol and 5-beta. This is a difference between 11OHA which, according to the study, is 11 hydroxy androsterone, which, in this case, is completely irrelevant to your argument, because we're looking at the

differences between pdiol and the 5-beta, and pdiol and 5 alpha. This is not pdiol.

Q. No. It's a different exogenous reference compound.

A. Yes. But you're comparing -- this is not comparing like for like. All those studies reported differences between pdiol and 5-beta, and pdiol and 5-alpha. You're now trying to compare apples with pears. This is not the -- this is not the difference that's been published in three studies, and this is not a difference that is here, highlighted -- where is it? Where is your volunteer three? Can you help me with that? Surely it must be on the slide as well.

Yeah, I mean, this is actually, your -- this --

Q. So --

A. If this is the study you're pointing to, so I would have hoped --

Q. So -- so your point is that you don't think that this is relevant --

A. This is absolutely, completely irrelevant, because that's not been measured. This is not even -- this is not even anywhere on

any page of this lab of metabolite differences for which we report delta/delta values.

Q. And to make clear, you have no experience in measuring delta/delta values in steroids whether you use 11 hydroxy or pdiol as your endogenous --

A. That is not the point. If you compare results, you have to compare the numbers from corresponding measurements. You're here not comparing numbers from a measurement that corresponds to anything in the papers published by Shackleton or by Aguilera or, indeed, the values that are in question here.

The values in question are the delta/delta differences between pdiol and 5-alpha, and pdiol and 5-beta. This is not a difference between pdiol and 5-alpha. And apart from that, this is one -- one volunteer out of two volunteers. This is purely a statistical observation. I'd like you to -- I'd like to see any peer-reviewed journal accepting a study on N equals 1, which is the statistical significance in one volunteer -- two volunteers. This is only -- this is the only P line out of this study that has been actually -- for this

particular application that has been analyzed by IRMS.

But, I mean that is just -- this is just really an aside. The main point is, is that -- that you're looking here at the differences between two values against a completely different endogenous reference point. And there's no precedent in the published studies by experts in this field, like Aguilera and Catlin and Shackleton.

And this is what I referred to. I didn't refer to the metabolic differences between a completely new set of metabolites or at least a key metabolite and an endogenous reference compound. So that, you can't compare. I'm terribly sorry.

Q. Okay. Take a look at LNDD 00966.

A. Somebody help me with that.

MR. WEISS: What exhibit number?

THE WITNESS: Yeah, I have it down here.

MR. BRUNET: Which exhibit, please?

MR. YOUNG: That's not the one I'm looking for. Here's what I'm looking for. It's in the Botré's exhibits.

Hang on one second. I'm sorry.

It is GDC. That's what the problem was. It's GDC 966.

James, can we blow this one up?

(By Mr. Young) Can you see that okay, Dr. Meier-Augenstein?

A. I'm looking at the printout. That, I can't read.

Q. Blow it up again.

A. Yeah, okay.

Q. I can tell you that this is the baseline that was drawn by the OS/2 software automatically. Is that a good baseline?

A. What is the baseline? This funny thing? This thin thing right here?

Q. It's the thin line.

A. That is not -- the baseline I'm looking at is the baseline in the chromatogram. I don't know -- I don't know what OS/2 software does. For that, you would have to ask a specialist in that area.

I've no idea how the OS/2 software comes up to this. I cannot possibly comment on that. I can give you my opinion on the baseline of the actual chromatogram.

Q. The baseline would be right here where the background is, right?

A. This is a 2-over-1 trace you're showing me. And whatever -- and whatever this is, I have to take your word for it, that that is an artifact -- this is a calculation that the software does. But if you want -- if you want -- if you want to ask me what I think about the baseline in the actual chromatogram that's right underneath, I'm quite happy to give you my opinion on that.

Q. You don't use 2-over-1 trace in -- well, of course, you don't work on the software, do you?

A. No. I use 2-over-1 trace on my systems to -- in essence, as an aid to troubleshoot. The moment I have a suspicion that the peak is not a clean peak, I look at the 2-over-1 trace to see whether there's evidence of a peak overlap.

Because there are occasions when you can actually tell from the 2-over-1 trace of a peak, whether a peak is a clean peak. It's not a foolproof method, but it's -- it's certainly -- it certainly helps when you get --

when you get nonsensical results and you try to figure out why this is.

Q. I think you testified earlier -- and tell me if I've got this right -- that the 2-over-1 trace is a very good way to identify peak starts and stops. But then you gave us a couple of exceptions.

A. No, I didn't say the 2-over-1 is good -- the peak detection software of the instruments I habitually use detect the peaks on the chromatographic trace under 44. The peak slope, for peak start and for peak ends, refer to those peaks -- since you're not going to bring this thing back --

Q. If you want to see it -- I'm sorry.

A. Yeah, that's what I said.

Q. Can you blow it up?

A. The lower one, yes, please. The peak detection parameters in the software of the instruments that I would rather use let me define the peak slope for the start and the peak slope for the end, and they actually keep it assigned.

This one is a plat either -- depending on software -- either a plus percentage change in the signal, and on the -- and at the end of the peak, a negative, because the peak comes down, percentage change in the signal or it's actually a change in so-and-so many millivolts per second plus, where the peaks start, and so-and-so millivolts seconds, or nanoamps seconds change on the end. You can't -- the 2-over-1 trace doesn't give you nanoamps because it's a ratio, and the ratio has no dimension.

If you divide kilogram by kilogram, you arrive at a dimensionless figure or a figure without a unit. If you divide nanoamps by nanoamps or millivolts by millivolts, you have no dimension left to interrogate.

So if you want to look at a peak and detect it, especially on a trace that looks like that, you would actually have two positive slopes on either end, because this part of the inflexion goes up and enough that it swings -- that end part also goes up.

Q. One second. You're swinging your pointer around.

A. Yeah, it's because I tried to illustrate what the 2-over-1 does for any of --

for a peak. Under normal circumstances, you have basically this, sort of what's called an S-shape reflection. A peak at the -- a peak detection software that allows -- that basically defines a beginning of the peak by a plus sign for the change in what it measures; i.e., the signal it measures here, whether it measures a volt, millivolt, amps or nanoamps. And so the start going up is positive, and when it goes down, that change in that unit over time is negative.

How can you possibly detect a peak on something that looks like that, where the beginning goes up and, hence, has a positive sign, and the end also comes up and also has a positive sign. Moreover, how do you detect a peak automatically on that when you have no unit that changes over time? Because if you divide it nanoamps by nanoamps, so the nanoamps have disappeared. So to say -- so if there's always the use of the -- that's the peak detection on the 2-over-1 trace, I have to take your word for it.

The Varian instruments don't do it; the Europa instruments don't do it. They detect

a minimal change over time on that trace here, on the 44 trace, where you actually -- where you actually have amps. Whereas on the 2-over-1 trace, you don't have any units, you just have -- what does it say? 2-over-1? Without any unit. It doesn't say amps; it doesn't say volts; it doesn't say anything because they disappear in this operation.

Q. So you don't know what the 2-over-1 trace is?

A. I know what the 2-over-1 trace is, but I don't know how you would -- I don't know how you would peak detect on that in an automatic fashion by -- in a software that only allows you to determine peak end and start slopes by a positive change of whatever you measure, whether it's amperage or voltage over time and then negative change of amperage over time or voltage over time, yeah?

Positive goes up; negative goes down. If you have things that are both like so, how does a peak -- how does the software determine where is the end if it looks for something that has a negative change over time?

Q. Let me show you a -- give me one

second.

In this study, which is GDC 1313 to 1318, you were talking about -- and this is one of your PowerPoint slides, correct?

A. Mm-hm, yes.

Q. You were talking about that, as an example, where you couldn't use the 44/45 ion trace to identify peak starts and stops.

A. No, I didn't say that. I said this is an example where the chromatogram that you actually see, displaying that -- to display that, depending on software you use, the display is optional. You can switch it on or switch it off. Most people tend just to look at a chromatogram because that's basically where the software has the peak detection on. So if you would be doing that, if you would, exclusively in this example, rely on that information on the lower half of the picture, you would be forgiven to think that this -- that this particular error in the chromatogram is no peak, because the peak detention software hasn't detected it, and we're looking at it. It could be anything.

However, this is, in this instance, the 2-over-1 ratio trace, or the 45-over-44

ratio trace, provides very helpful information, because you see here where there is no detectable peak in that chromatogram. You see a huge deflection upwards indicating a very -- a very highly reached -- that would be a bit of a material that has a larger than normal carbon-13 content.

So, here, you still can't detect

this peak, but at least, you have an indication in the 2-in-1 ratio that there is always something worth looking at. So you're here. You have an example where the 2-over-1 ratio is to help with the information. You still are not able to detect this peak because the peak detection happens down here.

So what you would have to do, if you really wanted to know what this is; i.e., you want to get a number for the carbon-13 composition, you would rerun the sample and inject more at a higher concentration.

Q. So you agree --

MR. BRUNET: Mr. Young, the document you referred to is not GDC 1313. It's, rather, the article that -- that was produced earlier titled, High Precision Measurement of Carbon 13,

Carbon 12.

MR. YOUNG: That's correct -- and I guess we thought that is exactly the document we are referring to.

MR. BRUNET: GDC 1313 is, rather, the article by Dr. Brenna.

MR. YOUNG: Sorry.

MR. BRUNET: So has this one been entered as an exhibit already? Has it been numbered?

MR. WEISS: It has not been

numbered. It will be the next GDC exhibit.

MR. BRUNET: Do you have a number to give me now?

MR. WEISS: That article is GDC 1365.

MR. BRUNET: Sounds good to me.

Thank you.

Mr. Young.

MR. YOUNG: Thank you for pointing that out, Mr. Chair.

Q. (By Mr. Young) I'm not going to take you back to your slide, and we can look at that later to see what you were representing in the slide, but the chromatograph here at the

bottom is only the 44 ion?

A. That's only 44, yes.

Q. And you wouldn't expect to see a peak here if what you were analyzing was a highly enriched C-13 substance?

A. I don't understand the question.

Q. Well --

A. This is not what I expect. This is an example where the chromatogram -- this is an example where you say you have in the chromatogram that you -- that where your peak detection software detects peaks would not detect the peak at this stage, because there's just nothing that is -- that the software would accept as a peak.

Q. And the reason is because this is a 44 ion trace?

A. Yes.

Q. And what they injected in this study, as is found at the bottom of Page 44, is a highly C-13-enriched compound with virtually no C-12?

A. This is not exactly what it says. If you read the sentence before, it says: "An interesting feature of the GC combustion isotope

ratio method is shown in Figure 14-12."

It shows a gas chromatogram of an extract from a fermentation experiment. It does not say it was a Carbon-13 study. It says a fermentation experiment. And then, also by chance, by looking at the 2-over-1 in an area where the lower trace doesn't show you a peak, the reflection in the 2-over-1 ratio, at this dimension point to the presence of a highly Carbon-13-enriched compound. There was no expectation to see a highly Carbon-13-enriched compound, because this was not a trace experiment. This was a fermentation experiment.

Read the entire paragraph, and don't quote out of the context.

Q. And their conclusion is --

A. That there is something here which

they didn't expect to see, which is highly Carbon-13-enriched.

Q. And that's why --

A. That's why they looked. That's why you can't see -- that's why you see hardly anything in here. This is just an example where the 2-over-1 trace is a very valuable diagnostic tool to point it to something that you otherwise

might have missed.

MR. YOUNG: I have no further questions.

MR. BRUNET: Mr. Suh, I assume you have a few questions to ask the witness?

MR. SUH: Mr. Chair, I might ask, we are very late for Mr. Meier-Augenstein's flight. We have two or three questions. I'm wondering whether or not we might be able to deal with those by telephone. He will barely make his flight as it stands. So, if we could take a brief recess and get him going, that would be great.

MR. BARNETT: I think we should finish the questioning. We did this with the French lab witnesses even at the risk of interrupting their travel schedules.

MR. BRUNET: Let's just go forward with your questions, Mr. Suh, and we'll go right along.

MR. SUH: You know, that's all right then. I would rather -- I would rather make sure he gets his flight. We will -- could we recess so that we make sure that Dr. Meier-Augenstein can get his flight?

MR. BRUNET: We don't need to recess. We can go right ahead, if you want.

MR. SUH: I want to make sure he gets his flight. If we could recess, we can get him in a car and get him going.

MR. BRUNET: But you understand there will be no further questions from you for the witness?

MR. SUH: That's fine.

MR. BRUNET: Recess for 15 minutes.

(Brief recess taken from 2:25 p.m. to 2:50 p.m.)

MR. BRUNET: Welcome back.

We have our next witness, please.

MR. JACOBS: Next witness is Dr. John Amory.

WHEREUPON,

JOHN K. AMORY, M.D.,

the witness herein, having been first duly sworn to state the whole truth, testified on his oath as follows:

MR. JACOBS: May I proceed?

MR. BRUNET: Please proceed.

MR. JACOBS: Thank you.

EXAMINATION

BY MR. JACOBS:

Q. Dr. Amory, where are you currently employed?

A. I'm an associate professor of medicine at the University of Washington in Seattle.

Q. And what is your area of specialty?

A. I'm both a physician and a scientist. My specialty is in male reproduction.

Q. In the area of andrology?

A. Andrology, which is male reproduction, yes.

Q. And can you tell us basically what you do as an andrologist?

A. In the clinical side of my practice, I take care of men who have testosterone deficiency; these are men with hypogonadism and need testosterone replacement therapy. In the research side of my life, I work on new formulations of testosterone and administering testosterone to men with hypogonadism, and also work on male contraception problems.

Q. Can you tell us a little bit about your education?

A. Yes, I did an undergraduate degree in Harvard in biology and took an M.D. degree at the University of California in San Francisco and did my training in internal medicine there as well. And I have a master's in public health from the University of Washington in biostatistics and epidemiology.

Q. What faculty positions have you held?

A. I've been at the University of Washington since 1997, initially as an acting instructor and an assistant professor; and in 2005, an associate professor of medicine.

Q. Can you tell us what hospital positions you have or have had?

A. Between 1997 and 2001, as director of the preoperative clinic, at the Veterans Affairs Center in Seattle; and since 2001, I have been a hospital inpatient physician and outpatient physician, both at the University of Washington, Seattle.

Q. If you could slow down a little bit, the court reporter would probably appreciate it.

A. Oh-kay.

Q. It's late in the afternoon.

In the area of andrology, have you

received any awards?

A. Yes. I recently received the Young Andrologist Award at the American Society For Andrology meeting this year. It's given to a researcher under the age of 45.

Q. Are you a member of any professional organizations related to andrology?

A. Yes. I've been a member of the American Society of Andrology for ten years now, as well as the Endocrine Society and American College of Endocrinology.

Q. How about editorial responsibilities, do you have any of those?

A. Yes, I peer-review articles that have been submitted for publication to Journal of Clinical Endocrinology and Metabolism, Journal of Andrology and among others, endocrinology, and so forth.

Q. You mentioned your areas of research generally. Can you tell us some of your principal areas that you're involved in in research?

A. Yes. In the last -- I take care of patients, as I mentioned, who are deficient in

testosterone, and these individuals require testosterone replacement therapy. And currently available clinical options that we have include gels and patches as well as the old standby, intramuscular injections.

What most of my patients say to me is, they would really like an oral or tablet formulation of testosterone, so that's been one of my major areas of research. And we have had some success, actually, and are now to the point where we are hoping to have a clinically available oral formulation of testosterone that's safe probably in the next two or three years.

Q. Now, you're also a member of USADA's independent anti-doping review board, correct?

A. Yes.

Q. And how long have you been a member of that independent anti-doping review board?

A. About two and a half years.

Q. Can you tell us briefly what that board is and what you do?

A. Certainly. The anti-doping review board is a body of independent experts, both in laboratory science and clinical science and law,

who look at evidence around the doping case and decide whether or not there is sufficient evidence for -- to progress to a full hearing.

Q. And if the independent anti-doping review board decides that there is sufficient evidence to go forward, then we end up here, right?

A. Indeed.

Q. Now, how many cases have you served on the anti-doping review board?

A. I think somewhere probably between eight and ten.

Q. And are you appointed for a certain term?

A. Yes, my initial appointment was for two years, and that was just recently renewed.

Q. So when does your current term end?

A. Probably January of 2009.

Q. Can you tell us when, approximately, you were first contacted in relation to this case?

A. Yes. Last summer, probably in late July or early August, I was quoted in a paper about testosterone, in general, and would it make sense for a cyclist to be using

testosterone. And after I was quoted, I believe Arnie Baker contacted me via e-mail.

Q. Let me ask you. I forgot to ask you one question. Do you have any sports background yourself?

A. Yes. I competed in sports in high school. I played football and wrestled. And then in college, I was a rower.

Q. Do you remember approximately when you were officially retained in connection with this case?

A. I do know that I had many e-mail conversations with Arnie Baker, initially, and then with other members of the Landis team sort of throughout the period in the late, kind of, winter, and then there was a period that that stopped. And then it was sort of increased again about March or April. It was a lull in the middle, but sort of off and on for the last eight months.

Q. Can you give us an idea of what documents you have reviewed in connection with this case?

A. Yes. Many of the documents, in fact, almost all of them, have been supplied to

me.

Q. So all the discovery documents in the case?

A. Mm-hm.

Q. Is that "yes"?

A. Yes.

Q. Did you review the briefs as well?

A. Yes.

Q. Can you give us an estimate as to how many hours you think you have spent reviewing all of those documents?

A. Probably 40 to 50 hours.

Q. Are you charging for your time in

this case?

A. No, I'm not.

Q. What was it that motivated you to get involved in the case?

A. Initially, I was quite interested in the case, particularly because of my work with testosterone. The case never sort of made a lot of sense to me, initially. And then it became -- as I started to see some of the documents, I thought there were several irregularities regarding the -- first of all, the handling of the sample and then, ultimately,

the results. I thought -- I thought they didn't make a lot of sense.

Q. Now, we have had testimony from some urine testers and one cyclist, who's an admitted doper, about what testosterone does, at least they think. But I want to get your perspective as an andrologist.

Can you explain to us what the function is of testosterone in the body?

A. Certainly. Testosterone is the most important male sexual hormone, and it really is the hormone that's responsible for almost all of male reproduction. It's the hormone that turns a preadolescent boy into a man.

So it has protein functions. It has functions on almost every tissue in the body including all the way from the head to the toes. It increases red cell mass, and that is the main reason why men have a higher hematocrit than women and increases muscle mass dramatically. It decreases fat mass. It has a marked effect on sexual function, mood, energy, and also hair growth, secondary sexual hair, increasing beard growth and ancillary hair, and ultimately leading to male pattern hair loss and prostate

hyperbole in men.

Q. Can you tell us what some of the legitimate medical uses are for administering testosterone?

A. Yes. So there are many men who congenitally lack testosterone, and they wouldn't go through puberty normally unless they were treated with testosterone. So fortunately, we have testosterone preparations which we can use to allow those men to -- to progress through normal puberty.

About one in 500 men are born with a condition called Klinefelter's syndrome, where they basically lack their own testosterone production. Similarly, the classic example of a man who's lost his testicles, either in an accident or to testicular cancer, those men require testosterone replacement therapy so that they can maintain healthy muscle mass and bone marrow density and normal sexual function and so forth.

Q. Now, when exogenous testosterone is administered to a patient, what happens to their production of their own natural or endogenous testosterone?

A. Most of the men with testosterone deficiency don't make very much but, as I mentioned, I do research in male contraception, and those men actually start out with a normal testosterone production. The reason we administer testosterone to them is to shut off their own production, and it's quite effective at that over time.

Q. You mentioned a little earlier there's multiple ways that you can administer testosterone. Can you describe each of the methods of administration and the benefits and disadvantages of each?

A. Certainly. The old standby is intramuscular injections. These have been available for 40 or 50 years. The formulation we have in the United States is testosterone enanthate. That's given by two different intramuscular injections here one to two weeks.

The advantages are you can achieve high delivery of the testosterone; the disadvantage is the shots are somewhat painful.

The testosterone comes in an oil base, so you have to use a large needle. Patients don't like that.

But about 15 years ago, patches became available, and those were somewhat successful, but many patients had skin reactions to them. And over the last eight to ten years, we tended to use a lot of testosterone gels, which you can use for testosterone deficiency. Those are a gel a patient puts in his hand, much like suntan lotion, and then rubs over their chest and back on a daily basis. Those are quite expensive, parenthetically.

Q. Joe Papp, when he came in here, he had a packet of AndroGel. Are you familiar with that?

A. Yes.

Q. And he also testified about something he called "microdosing." Do you know what that is?

A. Taking small doses that are designed to evade doping detection over a long period of time.

Q. In your opinion, would there be any physiological basis for microdosing with AndroGel?

A. Certainly not for an endurance athlete, no.

Q. Why is that?

A. From the studies that have been done on testosterone and endurance, there's no convincing evidence that testosterone played a role in augmenting endurance. It's quite effective at increasing strength and power and could be very useful for a sprinter or a weightlifter, but there's no evidence that it really helps with endurance sports.

Q. When you use or administer exogenous testosterone, what is the effect of that on some of the body's other hormones?

A. The main one is the suppression of the secretion of luteinizing hormone, and follicle- stimulating hormone from the pituitary. Over the weeks and months, the serum levels of luteinizing hormone and follicle-stimulating hormone will fall. This is actually how it mediates its contraceptive effect.

Q. If you can take a look in the exhibit book, and if we can bring it up, it's Exhibit GDC 620.

A. Okay.

Q. Can you tell us what this chart is?

A. Yes, this is a graph of how the luteinizing hormone level in the blood of an individual, a normal man, who has being administered testosterone enanthate at a hundred milligrams intramuscularly by weekly injection. On the Y-axis you're seeing serum luteinizing hormone, and on the X-axis you're seeing the time and days. The dotted line at one represents the lower limit of the normal range. The upper limit of the normal range is approximately 10. It's not on this graph.

What you're seeing there is, prior to the times zero, the luteinizing hormone level was approximately 4. After the individual started receiving -- this is actually a summary of seven individuals, this is the mean, and standard error of mean.

And after the subject, or subjects, started receiving testosterone, you can see that their luteinizing hormone level falls, and by week 28 actually becomes subnormal.

Q. So as you take testosterone exogenously, eventually your luteinizing hormone is going to drop to a point where it's below normal?

A. That's correct.

Q. How long does it take for the

exogenous administration of testosterone to actually start affecting the body's production of endogenous testosterone?

A. That's directly related to this, because, luteinizing hormone acts on the Leydig's cells within the testicles to stimulate testosterone synthesis. So the endogenous testosterone synthesis in this man would be very low by Day 28, but it would start to be a little bit affected, even earlier, as the luteinizing hormone level falls.

Q. In your experience, if you wanted to increase strength by using exogenous testosterone, how long would that take?

A. Several weeks. Probably in the range of four to six weeks. Most of the studies that have been done looking at the increase in strength and power associated with the administration of exogenous testosterone look at ten weeks and --

Q. I'm sorry. Go ahead.

A. And that's about the period of time where we expect to see significant increases.

Q. And are there peer-review studies dealing with that subject?

A. Oh, yes.

Q. Can you think of any?

A. Well, the best paper is by Shalender

Bhasin and his colleagues, actually, when he was here at Charles Drew in Los Angeles. It's in the New England Journal of Medicine in July in 1996.

Q. If you can take a look at GDC Exhibit 272, this -- how do you pronounce the name?

A. Shalender Bhasin.

Q. Is this the Bhasin that you were talking about?

A. Yes, it is.

Q. And generally, what were the findings from that paper?

A. This was an extremely well-done study. They took normal healthy men, approximately 40 of them, randomly assigned them to a ten-week course of high doses of testosterone, essentially ten times what the body would normally produce, or a placebo, and also then further randomized to exercise or no

exercise. And they tested them at the beginning in terms of their ability to do a bench press and a squat and then also did magnetic resonance imaging of their muscle mass to quantify the change over time.

What this study concluded was that superphysiologic testosterone in normal healthy men had an effect on muscle hypertrophy and strength that was independent of exercise, and that if subjects both exercised and took the superphysiologic testosterone, they had synergistic increases in both muscle mass and strength.

So this paper is seminal in that it really reversed -- prior to this paper, there have been doctors who have argued that testosterone had no effect on strength and muscle mass, and this paper, I think, conclusively refuted that claim.

Q. This is a peer-reviewed paper, correct?

A. Indeed. The New England Journal is probably the most prestigious medical journal in the world, and the peer-review process is the most rigorous.

Q. People have talked around peer review over the last week. Can you tell us what peer review is in this setting?

A. Yes. So, as a researcher, when you write a paper, you submit it to a journal. The journal, then, sends it to anywhere from three to six independent reviewers who are anonymous, and they review the methods and the conclusions of the paper and decide whether or not it's worthy for publication.

Papers are almost never accepted on

the first go-around. The reviewers can often be quite harsh and request additional data or additional experiments be done before the paper is accepted for publication. It's quite a rigorous process, humbly.

Q. So what's the ultimate goal of the peer-review process?

A. The peer-review process is essential because it assures that only data that is well presented and meets sort of the highest standards of clarity and of methodology actually make it into the published literature. Because once a paper is in the literature, it may be referred to as true, and occasionally papers are

wrong, and then they're hopefully overturned by the process, but this is an essential portion of the quality control of good science.

Q. You talked a little bit earlier about testosterone and endurance?

A. Yes.

Q. Are there peer-reviewed papers dealing with that subject?

A. Yes.

Q. Can you think of one?

A. The best, in my mind, is a recent publication by Baume and his colleagues in the European Journal of Applied Physiology from August of last year.

Q. If you can turn to GDC 621, and tell us if that's the Baume paper that you're referring to.

A. Yes. Yes, it is.

Q. And what were the findings of this paper as far as the effect of taking testosterone on endurance?

A. Yes. So just as there has been questions about the effect of testosterone on strength and muscle mass, there's a lingering doubt about whether or not testosterone or other

anabolic steroids have any effect on endurance. So these co-authors, which were from Switzerland, actually designed a nice study where they took trained athletes, importantly, and they randomly assigned them placebo testosterone or another anabolic steroid, administered steroid for a month while they were continuing conditioning, and then, at the end of the month period had them perform on a treadmill to compare their baseline performance.

The conclusions from this study were that the effect of the testosterone administration and the other anabolic steroids had no benefit when compared to the placebo in terms of any of the indices of endurance that they looked at including anaerobic thresholds, maximum heart rate, ability of the body to deal with serum lactate acid and so forth.

So this, I think, is the nicest study in my mind that emphasizes the point that the administration of exogenous testosterone has no benefit that we can measure on indices of endurance.

Q. Are you familiar with any peer-reviewed papers on the effect of taking

exogenous testosterone on recovery?

A. In my research, I found two papers that are quite out of date from the late '80s that looked at the issue of recovery, and -- but neither of those papers showed any benefit of testosterone administration on indices of recovery. I should mention that this paper, as well, looked at recovery indirectly by looking at muscle enzymes and other factors and did not see any benefit of testosterone administration on those indices either.

Q. Don Catlin testified the other day quite forcefully that taking testosterone would benefit with recovery. Are you familiar with any peer-reviewed papers he's written on that subject?

A. No, I'm not aware of any data that would substantiate that claim.

Q. We also had some testimony from a cyclist, Joe Papp, who testified -- and I'm going to try to get this right -- that he took EPO, human growth hormone, thyroid medicine, stimulants -- oh, yeah -- amphetamines, I think some substances that he didn't know what they were, and -- oh, yeah HGH -- forgot about that

one -- and microdosing of AndroGel. And his testimony was that it was the AndroGel that gave him the recovery benefit.

Would you agree or disagree that there would be a scientific basis for that testimony?

MR. BARNETT: Objection. In the spirit of Mr. Suh, if you're going to misstate the testimony that badly, let's go back and find it in the transcript.

MR. JACOBS: Okay. Let's find it. We will read exactly what he said.

MR. BARNETT: And make sure you get the time periods right.

MR. JACOBS: There is no transcript.

MR. BRUNET: In the interest of time, perhaps I'm following you with your question, if you will formulate it --

Q. (By Mr. Jacobs) I will just ask it differently.

If an individual were to take EPO, human growth hormone, thyroid medicine, amphetamines, cortisone -- I can't remember if I said HGH or not -- and microdoses of AndroGel, do you have an opinion as to whether the

AndroGel would give that individual some recovery benefit?

A. Based on my review of the literature, testosterone does not have a benefit for recovery. I would comment that the administration of erythropoietin is of great benefit to an endurance athlete and would help, I think, more than any of those other things that you have mentioned. But it's been demonstrated, I think, very convincingly in a number of studies.

Q. Are you aware of any peer-review studies dealing with the issue of how taking exogenous testosterone affects someone psychologically?

A. Yes.

Q. Can you give us an example?

A. Yes. The best example in my mind is by O'Conner in the Rue lab from the University of Manchester in 2002 in Physiology and Behavior.

Q. If you can turn to Exhibit GDC 633?

A. Got it.

Q. Is that the paper that you're referring to?

A. Yes.

Q. And what was the general finding of that peer review paper?

A. So, this is a good study. They were actually administering testosterone by -- via testosterone injections, testosterone enanthate, and they administered those that would be considered superphysiologic of 200 milligrams of testosterone enanthate by a weekly injection. And then they followed individuals over time and did multiple questionnaires looking at anger and hostility and physical aggression and so forth.

And what they found is that the men who started out testosterone replete, that is eugonadal had no change in indices of aggression or hostility over the treatment period.

What they did note is that men who were testosterone deficient at baseline or were hypogonadic men actually had improvements in those indices. In other words, they became less hostile and less irritable. This is something that's been known to happen with men who are testosterone deficient over time, because those indices do improve.

Q. Can you show us where in that paper

that's discussed?

A. It's Table 3, and it's on Page 561.

Q. Wait for us to bring that up.

And can you explain this table?

A. Yes. So this is the descriptive statistics for self- and partner-reported scores on aggression questionnaires. And what you're looking at in the top is that Week 0, Week 4 and Week 8. Week 0 is the baseline, and then Week 4 and 8 are the time on treatment. And then on the left-hand column, what you see there are scores for physical aggression, verbal aggression, hostility and anger.

If you focus on the first line in each of those trios, you can look at the most salient data from the study, which is what happens to men with normal testosterone, and they're called eugonadal men, when you administer them superphysiologic testosterone. And what you can see is if you follow the numbers -- do I have a laser pointer? May I have a laser pointer -- so, you have got them highlighted, perfect.

So, just starting out at the physical aggression here at the top, these are

the testosterone-replete men, or so-called the eugonadal men, treated over time. And you can see they start out at 18, go to 19, and then at the end, they're at 18.

Now, this is a nice study because they not only ask the men, this is a self-report, they also ask their partners. So sometimes people would argue, well, maybe the partner would notice something that the person themselves was blind to, and you see that those numbers didn't change either. The same exact conclusion could be reached for verbal aggression, hostility and anger.

So we really don't think that to administer -- in conclusion, we don't think that administering to the normal man superphysiologic testosterone has any impact on indices of aggression, hostility and anger.

It does help the hypogonadal men, however.

Q. Changing topics just a little bit. Are you familiar with the T/E ratio?

A. Yes.

Q. And are you familiar with how the T/E ratio is used in anti-doping?

A. Yes.

Q. Can you tell us your familiarity with that?

A. Well, in the cases that I've judged for the anti-doping review board, we -- the subjects who have tested positive for testosterone are first screened with the testosterone/epitestosterone ratio. That's how they come to attention.

Q. And if somebody takes testosterone exogenously, at least short term, what effect would that have on T/E ratio in your opinion?

A. The administration of exogenous testosterone causes the marked acute increase in testosterone/epitestosterone ratio in the urine.

Q. Are you aware of any studies dealing with the single use of testosterone gel and the effect of that on a T/E ratio?

A. To my knowledge, there have not been studies of a single use of a testosterone gel, but there have been studies including the Cologne study, Exhibit 34, looking at the chronic administration of testosterone and intermittent administration of testosterone gel.

Q. Let's take a look at that just on

the T/E ratio, just for a moment, if we can go to Exhibit 34. This is not a peer-review paper, right?

A. That's correct.

I have it in front of me.

Q. Do you have any idea what peer review, if any, has been afforded to this paper?

A. I do know that it was presented at a scientific conference.

Q. Do you know when that was?

A. I do not. Sometime within the last year.

Q. Now, what does this paper show as far as the effect of a testosterone gel on T/E ratio?

A. The results were quite striking, so the administration of a testosterone gel both over a long period of time and intermittently had a marked -- resulted in a marked and stable increase in the urinary testosterone-to-epitestosterone ratio.

Q. Was that for every patient or only some of the patients?

A. The majority of the patients had an increase to the level of about four, but there

were some patients who did not increase to over that threshold. Subjects, I should say.

Q. For the subjects who took testosterone gel who did not have their T/E ratio go over four, what did the testosterone gel do to their T/E ratio in relation to their normal reference range?

A. It did tend to increase it related to their normal reference range.

Q. Increased it up and above the normal range?

A. Yes.

Q. Did you identify from the study --

well, first of all, how many participants were there in the study?

A. There were 18 who underwent the analysis with testosterone and epitestosterone and other urinary steroids by GC/MS, and then two subjects underwent analysis by IRMS.

Q. Sticking just with the T/E ratio, now, what was the significance to you of the -- of this Cologne study when you look at all of Floyd Landis' T/E values from the Tour de France?

And we will put that up on the

board. It's a table that we previously marked as GDC 1363.

A. So, from the Cologne study, it's clear that the chronic administration of testosterone gel in the subjects in whom it increased the T/E, it did so consistently over the period of use.

So, one of the striking things, I think, about the T/E ratios that you can see here -- so, again, in this table, these are the dates on the left-hand column, the sample numbers. These are the urinary absolute concentrations of testosterone and epitestosterone, and this is the so-called T/E ratio.

And what you can see here is that,

using a cutoff of four, all of these values are well within the normal range and well within the range that one would expect them to be of one another, and that this value here, on July 20th, was out of range, and then these were normal.

So in relation to your question, in the Cologne study, people who used gel during the entire period of time, if they were to have an elevation above 4, it would stay above 4, and

some individuals had elevations into the -- well, above 15 or 20 range.

Q. Are you familiar with the difference between a low-mode individual and a high-mode individual?

A. Yes.

Q. What is that difference?

A. The high-mode individuals are individuals who usually have a T/E ratio that's around 1. Low-mode individuals, probably because they don't secrete as much epitestosterone, often have T/E ratios that are quite low, as low as 0.1. Many of these individuals are Asian. And the most important thing for doping control is they tend to be fairly stable over time. So somebody who had a baseline T/E ratio of one and is a high-mode individual is not all of a sudden going to become a low-mode individual. You either fall in one of those two camps, and you stay there.

Q. So you don't switch back and forth. You're either one or the other?

A. Indeed.

Q. If the contention is that testosterone gel was used here, here, here and

on those two dates, and taking a look at the T/E ratios, when you look at all of that together, does that picture look consistent to you?

A. No. If testosterone gel had been used on all those dates, I would expect the T/E ratio to be high, higher than it is, at least above 4.

Q. So you would expect the T/E ratio, if testosterone gel was being used, to be higher on July 13?

A. Yes.

Q. And if testosterone gel was being used, you would expect the T/E ratio to be higher on July 18?

A. Yes.

Q. And if testosterone gel was being used, you would expect the T/E ratio to be higher on July 22?

A. Yes.

Q. And if testosterone gel was being used, you would expect the T/E ratio to be higher on July 23?

A. Yes.

Q. Right?

A. The T/E ratio is a very sensitive

marker of the use of exogenous testosterone gel.

Q. If the allegation is that testosterone gel was used on those five days, do you have any confidence in the totality of the results?

A. I do not consider those results to be consistent with the use of testosterone gel over that period of time.

Q. What if the contention were that on some of these days, we had injections of testosterone, and other days, we had testosterone gel being used?

A. Testosterone injections, similarly, should cause marked or rapid increase in the urinary testosterone/epitestosterone ratio. It persists, parenthetically.

Q. What if the theory was that on some of these days, oral testosterone was being administered, and other days, testosterone gel was being administered?

A. Oral testosterone in the form of, for example, oral testosterone undecanoate can cause rapid increases in the testosterone-to-epitestosterone ratio that do attenuate over time.

Q. Would that be consistent or inconsistent with what you see here?

A. I would be very surprised, but it's not impossible.

Q. Looking at the actual testosterone concentrations for the stages where it's alleged that testosterone was used, is there anything striking to you when you look at the testosterone concentrations?

A. Yes. These absolute concentrations of urinary testosterone, or some of them, are frankly low, below the lower limit of normal, and the others are low. The normal range, probably, for urinary testosterone would be between 40 and 160 or 200.

Q. What is the significance to you of the numbers that you see here in the T column?

A. They're fairly consistent with one another, and they're all in the low range of normal, or below the low range of normal.

Q. And what does that mean to you?

A. There's not very much testosterone in the urine.

Q. Is there anything in the epitestosterone numbers that is striking to you?

A. These numbers are also quite low.

Q. And what does that mean to you?

A. Epitestosterone is, as I mentioned, in many individuals who are high mode should be present in about the similar proportion to testosterone, but these numbers would be -- almost all of them are below the lower range of normal.

I was going to say something else, but I forgot.

Oh, yes. Oh, yes. It's important to remember, with the excretion of both testosterone and epitestosterone, that there is a significant circadian rhythm to testosterone. We know that it's produced in a circadian rhythm, and then it also turns out to be excreted in a circadian rhythm. The circadian rhythm is such that the excretion of both testosterone and epitestosterone actually is at its lowest point or nadir in the mid-afternoon.

Q. Meaning that in your mid-afternoon, your absolute concentration levels of testosterone and epitestosterone are just going to be naturally low?

A. They're at their lowest point,

almost in lower magnitude, lower than the average during the rest of the day.

Q. So right around the time you might finish a Tour de France stage?

A. I think so. 5 p.m. is the time that's been reported in the literature. You will have to tell me if that's when a Tour de France stage is finished.

Q. But sometime late afternoon --

A. Yes.

Q. -- it's decreasing?

A. I know they ride a long time.

Q. Can you tell us in the work that you do with the USADA independent anti-doping review board, are you familiar with the carbon isotope ratio test?

A. Yes.

Q. And what is your understanding of that test?

A. The carbon isotope ratio classically has been used as the confirmatory test to the testosterone/epitestosterone ratio. Essentially, what you're looking for there is evidence that the testosterone that's present is of exogenous origin. And that can be determined

by having a larger value, so-called delta/delta value, between the carbon content of the testosterone metabolites and an endogenous reference compound.

Q. If an individual uses exogenous

testosterone, can you explain how that would metabolize within the body?

A. Oh, yes. Do you want me to explain it?

Q. Go ahead.

A. So testosterone's metabolism is extraordinarily complicated. First of all, it serves as a pro hormone for formation of dehydrotestosterone and estradiol for the man, which are both hormones, until they erupt into themselves. Then from that point, it's metabolized in a variety of ways, chemically converted to certain compounds. Also, in the liver, sulfur and sugar compounds are added to the testosterone. The most important thing for doping analysis is the formation of certain metabolites: Androsterone, etiocholanolone, 5-alpha diol, and 5-beta diol, as these are used as markers of the testosterone that's been in the body.

Q. Of those four metabolites, the androsterone and etiocholanolone and the 5-alpha and the 5-beta androstanediol, would you expect there to be any relationship, either the four together or in pairs or some other way, if someone were to take exogenous testosterone?

A. Yes. In fact, they should correspond fairly tightly to one another. In particular, the one that's used most commonly in the cases that I've reviewed for USADA has been the 5-alpha and the 5-beta diol.

These -- if there is going to be an increase in the delta/delta value, these increase quickly and in tandem with one another after the administration of exogenous testosterone.

Q. Are there peer-reviewed scientific papers that you're aware of that support that?

A. Yes.

Q. Can you think of any sitting right here?

A. Yes. The best is the Shackleton paper from 1997, in steroids.

Q. And that's in the exhibit book, Exhibit 40 at USADA 1241. Make sure that's what

you're referring to.

MR. BRUNET: This is 40, but it looks like it's something else.

Q. 1241.

A. Got it.

Q. Is this the paper that you were just referring to?

A. Yes.

MR. CAMPBELL: What exhibit is that?

MR. JACOBS: It's in Exhibit 40, which is a number of papers, and it's specifically Bates-labeled starting at USADA 1241.

Q. (By Mr. Jacobs) Is there a particular portion of this paper that you would refer us to as being consistent with what you just testified about how these metabolites track?

A. A very nice illustration of this is on Figure 4, on Page 383, I believe. Yeah.

Q. Can you tell us what this figure shows?

A. Okay. This figure deserves some attention. So, what you're looking at here is, on the top -- it's hard to see -- is time and

days, starting out at zero and going all the way to 14 days. And this arrow with the T is the time that the subjects in the study -- these are normal men -- were administered a single intramuscular injection of testosterone enanthate dose of 250 milligrams, so exogenous testosterone, similar to what you might see in doping.

Q. I will ask you to slow down. I can see the court reporter getting stressed.

A. Thank you, mea culpa.

So on the top here is time. And on the Y axis, what you're seeing is the carbon isotope values, and yeah, if you can enlarge that. This is minus 25, and if my eyes are not failing me, this is minus 30. And what you're looking at here is, over time, the changes in the metabolites compared to the endogenous reference compound.

And very good.

So, the open circles here are, in this study, the pregnanediol, which serves as the endogenous reference compound. And in this particular part of the photograph, you're looking at the 5-beta diol. Perhaps one of the

other sort of panels would be better, because that has the both the 5-alpha diol, and the 5-beta diol. The second one from the upper left-hand corner, I think, is a fine example.

Q. Upper right or --

A. Yeah, that one. Upper left. We can go through them one at a time. So this is a much nicer example.

Again, here's the day. Here's the time of the testosterone injection. And you can see, at baseline, there's a baseline delta/delta value. You can just subtract this number from that number, and you get about two. Okay.

And then once you administer the testosterone, almost immediately the value of both the 5-alpha diol and the 5-beta diol falls dramatically. And now the delta-delta value, which you track it directly from the graph, is this number minus this number, so it's approximately four. And it stays down -- this is after a single injection -- it stays down.

The pharmacokinetics of testosterone, that is, how long it lasts after you give a single injection, is approximately 14 days. And you can see that echoed here in the

kinetics of the change of the metabolites. They go down in tandem with one another. They're actually very close to one another. And it's only as the testosterone injection is starting to wear off that you start seeing the 5-alpha diol and 5-beta diol return to normal, which they do at approximately 17 days.

So this is a nice example of how you would expect these metabolites to behave in a normal man administered exogenous testosterone. The 5-alpha diol and the 5-beta diol should decrease acutely, very quickly, after the injection. They should stay down while the testosterone is in residence and, over time, as the testosterone wears off, they should increase in parallel to one another back to their baseline delta/delta values, between one and two.

Q. In your opinion, would there be any scientific basis to believe that the administration of exogenous testosterone could affect the carbon-13, carbon-12 ratio of one of the diols in a significantly different way than the other diol?

A. That's not been reported in any

peer-review literature that I'm aware of. I should mention that others have published similar data as this and have found similar findings. So I consider this result to be well corroborated in the literature.

Q. In your opinion, what would be the maximum difference, if you will, in the delta/delta values of the 5-alpha versus the 5-beta that you would expect to see if somebody had taken testosterone exogenously?

A. So you're asking me the difference between the 5-alpha, and the triangles, and the 5-beta and the squares?

Q. Yes.

A. Based on this data and other similar data, I would expect it to parallel each other very closely. I would be surprised if there were a difference greater than 1. I would be very surprised if there were a difference greater than 2 in the delta-delta value.

Q. Is there anything in the Cologne study that we looked at earlier that was of significance in relation to this issue?

A. Yes. So in the Cologne study, as I mentioned --

Q. Let's go back to that. It's Exhibit 34.

A. So as we discussed earlier in Exhibit 34, which was the testosterone gel study done by our colleagues in Cologne, they did do IRMS on two individuals. And looked at the ratio of their urine metabolites over time.

Q. If you want to refer us to a specific page, we can bring that up.

A. Yeah, I have got some -- may I look at the notes on my copy of this?

Q. Sure.

A. I would think I would look at Page 15 -- you have got Figures -- maybe it's better to start on Page 14. Excuse me. Figures 18, 19, 20 and 21 are the IRMS results.

Q. Okay. Let's start with Figure 18. What is the significance of that to you?

A. So I'm going to look at mine, because I can't see that very well. So Figure 18 is the T/E ratios and IRMS data, the delta/delta differences of the urine sample of the volunteer, and the P values here. I should say, this refers to Patient 10, so we're looking at individual patient data here, over time.

And what -- oh, that's much better -- what you're seeing here is, the green bars represent the baseline period, and then the period after the administration of testosterone gel in green. And then there was a six-week period here, in red, where the subject, in this case, Patient 10 was self-administering testosterone gel. And what you see is what you hope to see, is that the T/E ratio is actually positive during the entire time that the testosterone gel is being administered.

And then, going on here, you also see that using one of the delta-delta values -- it's a different one than we discussed -- you can see that that's a positive, at least, on four of the six occasions, here and here, it falls below what we consider to be a positive standard for positivity, but you can see it is dramatically changed compared to both baseline and follow-up.

And then the last is also looking at the difference between -- again, this is an IRMS difference between an endogenous reference compound and testosterone; it's positive across the board. So there's a nice corroboration here

between the T/E ratios and the delta/delta values. So the GC/MS and the IRMS actually corroborate one another quite nicely here.

Q. Any other figures in the Cologne study that you found to be significant in relation to IRMS testing in this case?

A. Yeah. Yes. Figures 20 and 21 are quite interesting as well.

So this is an -- this subject is different. This is now a patient, or Patient Number 9 or Person 9, I believe, is the nomenclature that they used. And this experiment was a little different. The first one took the testosterone continually. This subject, as you can see in the red bars here, took the testosterone intermittently. So he had two weeks of baseline, two weeks of administration, two weeks of no administration, and then a repeat administration of two more weeks.

And you can see here that the IRMS difference is -- behave as you would expect, but they're not as quite as sensitive as we would like them to be, and it looks like three of the eight measurements aren't above the threshold

for positivity, but some of them are. Although it's not a perfect test for detecting the presence of exogenous testosterone, it's at least behaving in a sense that makes physiologic

logic.

Q. Anything else in this study that you found to be particularly significant to the IRMS issues in this case?

A. Yes. Looking at Figure 20 on the bottom, again, there's this individual -- this is the same individual, Person 9. Again --

Q. That's Figure 21. We're still on 20.

A. Let's look at 20 first and then 21 next.

The bottom panel on Figure 20. Great.

We just looked at that, so I'm sorry. Let's go ahead to Figure 21.

The important thing is to contrast the difference between the adiol and the bdiol here. This is interesting.

So, again, you're seeing -- this is the same individual -- the two green, where the baseline, and then the two red on treatment, two

more off treatment, two more on treatment, and then the follow-up.

You're again seeing the peak that you would expect but, again, none of these four zero readings are above the threshold for being an adverse analytical finding.

So there's a little bit of a

difference between the adiol and the bdiol in this single subject in this study, but the samples still are behaving in the fashion that you would expect.

Q. Now, taking a look at the table that we looked at earlier, of all the values, which was GDC 1363.

A. Yeah.

Q. And let's start with the July 20, and looking at the diol values.

A. Mm-hm.

Q. In your opinion, are the two diol values here consistent with what you would expect if someone administered exogenous testosterone?

A. No, they're not. As you can see, the difference here is close to 4, and that's much greater than what we've seen in, for

example, the Shackleton study or the other similar studies. As we said, we expect those values to go down in tandem with one another and actually parallel one another fairly closely.

Q. Looking at the July 22, if the allegation is that exogenous testosterone was administered there, again, focusing on the diols, are those values consistent with the exogenous administration of testosterone, in your opinion?

A. It doesn't look like anything we've seen in studies of men who have been administered exogenous testosterone. Again, the difference here between the two metabolites when compared to their endogenous reference compound exceeds 3. It's just not something we've seen in previous studies in men who have been given endogenous testosterone.

Q. When you look at the totality of all the values, all the T/E ratios, as well as the IRMS values, based on what you have reviewed and your experience, are you confident that these results are accurate?

A. I think the pertinent question is whether or not these results could be used to

confirm that doping occurred, and I do not think they can, because again, you are not seeing the patterns that you would expect to see in the two metabolites. You're not seeing, for example, in this one, that actually is pretty -- pretty good concordance between the 5-alpha and the 5-beta diol but, at that time point, the T/E ratio is normal. I can't say that I understand that there's a physiologic process that could give you these to be abnormal and this to be normal.

I'm not seeing any time point here where the T/E ratio is positive and the metabolites are positive. And since the two tests are supposed to back each other up, it's quite puzzling to me what exactly is going on here.

Q. And if this T/E value of 11-to-1 were accurate, that would tell you if Mr. Landis took testosterone that his T/E ratio goes up dramatically, right?

A. Yes.

Q. And if that's the case, then you wouldn't expect a T/E ratio of 2.5 if exogenous testosterone was administered, correct?

A. That's correct. And that's the crux

of this. You can't have one without the other.

Q. You can't have it both ways?

A. No.

Q. Let me ask you also on the andro minus

11-keto and the etio minus 11-keto, would you also expect, if someone exogenously administered testosterone, to have the similar types of consistencies and values there?

A. You should see abnormality there as well, and they should parallel one another, and these values are all within the range that I would consider to be normal.

May I point out one more thing?

Q. Of course.

A. This day, in particular, is quite

jarring. 723. The T/E ratio there of 1 with a marked discrepancy between the 5-alpha and the 5-beta diol. This is normal, and this is distinctly abnormal. And I'm just not aware of any physiologic explanation why you should see a result like this.

Q. In your review of the Cologne study, you went through the figures from all the 18 persons, right?

A. Yes.

Q. For any of those individuals, were there values that were consistent with what we see here?

A. No. If you were a low-mode individual, you might have a bump in your T/E ratio, but these would be positive. This is not the T/E ratios of a low-mode individual. This is the T/E ratios of someone with -- a high-mode individual, so you would expect these to go up in accord with these, and they do not.

Q. So if you're a low-mode individual, and you take testosterone, then your T/E is always going to stay low, right?

A. It starts out very low, and then goes up to not above 4, but it will go up above baseline consistently with testosterone use.

Q. And if you're a high-mode individual, and you take testosterone, then your

T/E ratio is always going to go --

A. It should always go into the abnormal range.

Q. Abnormal, like, higher than 4?

A. Certainly, yes.

MR. JACOBS: Thank you. I've no

further questions.

MR. BRUNET: Thank you.

Mr. Young.

EXAMINATION

BY MR. YOUNG:

Q. Let's talk about your experience in doing research with testosterone in urine.

How many studies have you done to look -- looking at urine to measure either testosterone or epitestosterone?

A. I have done no studies on urinary steroids.

Q. And so when it comes to urinary metabolism of steroids, you would rely on someone like Dr. Shackleton?

A. I rely on the literature.

Q. And Dr. Shackleton's was the paper that you referred to on steroid metabolism?

A. Yes.

Q. You said that you have worked on USADA cases involving T/E ratio and IRMS?

A. Yes.

Q. That would be two, right?

A. Probably around two. Of the ten cases, I think, probably two or three were

testosterone related.

Q. The others were stimulants and things like that?

A. Indeed.

Q. And that would be the only time in your career, other than this case, when you have had occasion to look at T/E ratios?

A. That's correct.

Q. And it would be the only occasion in your career that you have ever had to look at IRMS results like 5-alpha and 5-beta diol?

A. Correct.

Q. In your experience, when you do your work for people who are deficient in testosterone, is it mostly in blood?

A. Yes.

Q. Would you agree that in urine or blood the route of injection makes a difference in terms of what you would expect to measure in testosterone?

A. Yes. Oral administration of testosterone, for example, results in very quick clearance of testosterone in the urine, whereas intramuscular injections and gels seem to establish more of a steady state.

THE REPORTER: Seems to what?

A. Establish more of a steady state.

Q. And if you were to -- the time after administration that you measure makes a big difference, right?

A. Yes.

Q. And are you aware of any studies where they have looked at someone mixing different types of testosterone administration, like a gel and an oral product?

A. There's some data from the Cologne study using an andriol, but I believe that was at different times. They weren't dosed concurrently, if that's what you mean.

Q. And if you were -- if you were an athlete, and you wanted to keep your T/E ratio down, there's two ways you can do it. One is the obvious way: You mask with a T/E cream, right?

A. Right. Sure. You self-administer epitestosterone.

Q. And that would cause your T/E ratio either to look absolutely normal or go down or you could manipulate it any way you wanted?

A. Theoretically possible, yes.

Q. Well, it would -- if you self-administered epi, your T/E ratio would go down?

A. Yes.

Q. And if you -- if you were using one or more different testosterone products, like a pill that's fast acting, and you took a day off, that would have a significant effect?

A. Yes. But if we could just go back to the last question you asked me about self-administering testosterone to epitestosterone cream, for example? In that instance, I would expect the absolute value of the steroids and the urine to be relatively high, and that's not the case in this instance. It's actually low.

Q. Are you done?

A. Yeah.

Q. It depends on how much you administered, right?

A. Yeah, but you would expect -- I mean, a testosterone that's administered is actually metabolized fairly quickly, so it should show up in the urine quite soon after administration.

Q. And if your T was already fairly low, you wouldn't have to administer much E to change your T/E ratio, or to have a marked increase in T, measured in your urine?

A. Sorry. Can you ask that question again?

Q. Sure. I will ask it in two parts. If you already have a relatively low T, then, it wouldn't take much --

A. Are you talking about urinary T?

Q. Yeah, urinary T.

A. Okay. Sorry.

Q. It wouldn't take the administration of much E to change that T/E ratio?

A. No. Because, as you know, it's in the denominator of the equation, so a small change in epitestosterone could change the ratio pretty markedly.

Q. And if you did that, you wouldn't see any marked difference in the absolute amount of T that was measured in your urine?

A. No.

Q. There could be some?

A. Yeah, could be some. But the absolute T value might not change if you were to

take an epitestosterone cream, for example. Your conversion, parenthetically, between epitestosterone and testosterone is very small, less than 1 percent.

Q. Are you aware of any studies that

have been done that show that during a long event, like a stage cycling race, that an athlete's testosterone level will actually drop?

A. I'm not aware of any studies, but it wouldn't surprise me if that occurred. Stress can be very -- have a pronounced effect on the high performance and trigger a gonadal axis.

For example, patients who were hospitalized for one reason or another will have dramatic drops in their testosterone concentrations, so I would imagine that the stress of a cycling event could have a similar effect.

Q. Let me direct your attention to Exhibit 43. And it starts at USADA 804.

Tell me when you which had a chance to find it?

A. I've got it, yes.

Q. So first, let me be clear, that whatever opinions you have on how T and E is

affected and how IRMS may be affected is just based on what you have read. You have never done any work yourself in that area, right?

A. I've not done any researching of that other than what I've read in the literature.

Q. And so did you look at this study?

A. No, I have not looked at this study.

It's by the same group that did the endurance study that we just mentioned earlier. It's Baume and his colleagues.

Q. You said that you have reviewed a lot of documents in this case. Did you get our exhibits?

A. I got many, many binders. I couldn't tell you whether I've your exhibits or not.

Q. Okay. Could we blow up just this part.

And this shows -- it's about oral testosterone --

A. Mm-hm.

Q. -- right? And it's multiple doses over four weeks in seven men.

Take a look at Figure 1, which is at

Page 367 of the study.

A. Okay.

MR. YOUNG: James, I need 367.

Q. (By Mr. Young) Here you go.

Now, I want to focus on this individual right here. So, he was somebody after his first dose of testosterone pill?

A. Testosterone pill and undecanoate, mm-hm.

Q. His T/E ratio isn't affected at all in 24 hours, correct?

A. Yeah.

Q. And his 5-alpha and 5-beta drop precipitously and together after four hours and back to normal in 24 hours?

A. Yeah. A couple comments about this. This is clearly a low-mode individual, so we were talking about those earlier. If you look on the Y axis there, you can see that his baseline T/E ratio is 0.1. That's pretty classic for a low-mode patient, in contrast to the high-mode patients who have a baseline of about 1 for the T/E ratio.

The only thing I'd like to comment on this paper -- I'd love to actually read it

more -- the testosterone undecanoate has a notoriously short half-life in the body. That's why, for one reason, it wasn't approved for use in the United States. In Europe, where it's used, it's actually dosed three times a day because of this acknowledged very short half-life.

Q. And that's why if you were an athlete and wanted to avoid drug testing results, either with T/E ratio or IRMS, this would be a good thing to take?

A. I would think that this would be a better way than any other method, frankly, if that were your purpose. The problem with that thinking, though, is that the short half-life of testosterone means that it doesn't have much of a beneficial effect. You have to take testosterone for a long period of time to have a benefit. So, just taking a single dose of 80 milligrams or 160 milligrams of testosterone undecanoate -- I would venture to guess that it would have no effect. You might evade doping detection, but then you wouldn't get anything out of it.

Q. Let's go down -- go back to the main

screen -- and let's go to this one right here.

So here's somebody who takes oral testosterone, and in four hours, his T/E spikes up from 1 to over 10.

A. Yup.

Q. This is not a low-mode individual, right?

A. No, this is not. And that's about what you would expect to happen, actually, given the high absorbance and the short half-life of the dose of oral testosterone undecanoate.

Q. And within eight hours, it's back to normal again.

A. It's gone.

Q. And 5-alpha and 5-beta, in this case, go together. And in eight hours, you wouldn't detect that either?

A. No, this is a great slide.

So what you're seeing here, though, is that the T/E goes up and down, just the same as the delta/delta values go down and up, in almost exactly the same time course. So then they give you -- you use something like this to explain why you've got a positive T/E on one day and a positive metabolite on another day, or a

pair of positive metabolites on one day, and a normal T/E on the next. They're actually doing what we would hope they would do, which is going up together, and down together, and going down together, and up together. It shows that the time course here of the pharmacodynamics of an oral dose of testosterone undecanoate actually parallel each other nicely. This is encouraging to me.

Q. So this particular athlete could take oral testosterone every day before he went to bed, and you wouldn't be able to find it in an after-race test the next day?

A. So if you're doing that here, you would never know. This individual would never even screen positive.

Q. Now, let's look at the Shackleton paper that you referred to. It's USADA 241.

Excuse me, it's, Exhibit 40.

MR. CAMPBELL: Exhibit 40?

MR. YOUNG: It's Exhibit 40, 241, sorry.

THE WITNESS: It's one of the latter papers.

Q. (By Mr. Young) Tell me when you've

got it.

A. I'm there. It's 1241?

Q. Right.

A. Yup, got it. This isn't right.

There you go.

Q. Okay.

MR. YOUNG: And then, James, could you go to USADA 1245, and let's blow this one up.

Q. (By Mr. Young) This individual is very different than the one we just looked at, isn't he?

A. This Subject 5? Yes.

Q. And so in his case, the 5-alpha and 5-beta behave very differently?

A. I actually think -- so, here there's a difference about one there, baseline, and they go down in tandem. There's -- they're both down through the entire period where the testosterone is active here. There's going to be a difference of about one, or at most two, if this is 29, 31. There's not a difference of more than two through 1, 2, 3, 4, 5, 6, 7, 8 periods, and only in this one data point, you actually get a difference of probably more than two. I'm

going to call that 27 and 29 and a half.

So, actually, the difference is staying under two here, between the 5-alpha diol and the 5-beta diol at nine and ten points, and it's only really here, after 13 days after testosterone administration, you're seeing a display there.

Q. Go back to the full page.

What you see from this is that -- and again, this is an injection --

A. Yes.

Q. -- a single large injection?

A. 250 milligrams of testosterone enanthate.

THE REPORTER: I'm sorry. Testosterone what?

A. Enanthate.

Q. And people -- different people metabolize in terms of 5-alpha and 5-beta, that injection, differently?

A. There's some variation to be sure, but the patterns are quite similar, actually. The scales are the same. It's going down dramatically right after the injection. It's staying down through at least eight to ten days in each of those individuals. This is actually, to me, again, reassuring that the pharmacokinetics are somewhat reproducible.

Q. Would you expect the 5-alpha metabolite and the 5-beta metabolite to behave differently depending on whether the product is administered orally or through the skin?

A. A priori, I might; but based on my experience with testosterone gel -- and I'm familiar -- let me back up a bit -- I know that that was hypothesized as an explanation in that one subject in the Cologne study, the relative increase in the 5-alpha diol minus the endogenous reference compound. The authors of that report hypothesized that, Oh, a gel does this because there's 5-alpha reductase in the skin, and therefore, there's a disproportionate increase in dehydrotestosterone in the gel application that might lead to a discrepancy in the 5-alpha diol and 5-beta diol.

That explanation is incorrect.

I've administered testosterone gel to hundreds of normal men, hundreds of men with hypogonadism, and studies of this have been done in thousands of men, and we do not see a

disproportionate elevation in DHT over T in any of these studies. The only way you could get that is if you administered the testosterone to either the scalp or the scrotum that have a lot of 5-alpha reductase in the skin.

We did see in the very first testosterone patch that came out that was applied to the scrotum -- you did see this disproportionately high elevation of DHT, but if you put the gel on the rest of the torso, the DHT and testosterone go up in parallel, so I can't see that that explanation that was offered in the Cologne study made sense to me.

Q. You have never measured how the 5-alpha and the 5-beta react after the administration of a gel, have you?

A. No. There are lots of data on serum testosterones and DHT that I'm referring to.

Q. But not urine?

A. No.

Q. Is one of the reasons that you have never -- have you ever looked at epitestosterone in blood?

A. Yes.

Q. Does it have any medical purpose?

A. No. I looked at epitestosterone in blood as part of one of my research studies looking at whether or not it would be a good marker of endogenous testosterone production in our male contraceptives studies.

Q. Let me show you --

MR. YOUNG: May I approach?

MR. BARNETT: This will be USADA Exhibit 122.

Q. Is this the newspaper article you referred to earlier in your testimony?

A. Yes.

Q. Look at the bottom of the page, where it says -- can we -- where it says -- and it moves over, and so I can move that over for you if you'd like: "Dr. John Amory, an endocrinologist at the University of Washington, said that men ordinarily produced one molecule of epitestosterone for every molecule of testosterone."

Is that true?

A. No, that's not correct. I don't think she quite understood our discussion.

What I was trying to tell her is that if you look at the urine in a man, there

should be approximately a one-to-one ratio. The epitestosterone synthesis is quite -- is on an order of a magnitude smaller than testosterone synthesis, and circulating serum levels are on an order of a magnitude lower. Most people think it's probably around 5 percent of the testosterone synthesis.

Q. Did you say what's quoted in that paragraph that starts: "When we get cases to review, chain of custody," etc., etc.

A. That is not -- it may bear some resemblance to what I told her, but that's clearly not right. I wouldn't have said something like that. So you can't squirt testosterone into a sample and affect the carbon isotope ratio, for example. That's a gross oversimplification.

Q. Well, you can't squirt testosterone and affect T/E ratio or anything else, can you?

A. Well, you can affect T/E ratio.

Q. But it would show up as free testosterone --

A. That's true.

Q. -- not conjugated testosterone?

A. True, fair enough.

Q. So if somebody squirted testosterone into a sample, it would be obvious.

A. Clearly, that's not correct.

Q. And how would somebody squirt testosterone into -- well, take a step back.

Are you familiar with the Berlinger bottle system that's used in anti-doping?

A. No.

Q. Not at all?

A. No.

Q. So your assumption is, somebody would be able to get into the bottle and then tamper with it?

A. I don't think that that's what happened.

MR. YOUNG: I've no further questions.

MR. BRUNET: Thank you.

MR. YOUNG: I'm sorry. I have one more question.

MR. BRUNET: Okay.

MR. YOUNG: If I may. Sorry.

Q. (By Mr. Young) You said earlier that use of testosterone increases red blood cell production?

A. Yes.

Q. And so, if you're using testosterone, you might expect your hematocrit and your hemoglobin to go up?

A. In our patients with testosterone deficiency, they'll start out anemic, and they will improve up to baseline. And in older men who are administered high doses, we do sometimes see polycythemia, or a very high hematocrit as a side effect. So it does have an effect on increasing red blood cell mass in certain circumstances, yes.

Q. Did Mr. Landis tell you that he had

a list of his blood test results, a profile of his blood test results, from UCI --from International Cycling?

A. I've not seen such a list.

Q. So he didn't provide that to you?

A. I've not had a discussion with him about this, no.

MR. YOUNG: I think I'm done. But just let me check, so I don't sit down and come back again.

That's it. Thank you.

MR. BRUNET: Thanks.

Okay. Mr. Jacobs?

EXAMINATION

BY MR. JACOBS:

Q. Just for the record, I'm not clear what test lists he's referring to. But, let me ask you some questions.

In the New York Times article that you were shown, you had something about chain of custody being really paramount --

A. Yeah.

Q. -- and lab documentation is paramount as well, right?

A. Well, yeah, in the cases that we're asked to review for the anti-doping review board, we get on a telephone conference, and we go over where was the sample at a given time, and that information is written down, and we review that to make sure that it's complete. It seems like a very important part of the process.

Q. When you got the lab documentation in this case, did you, for yourself, go through a similar process?

A. Yes, I went through much of that as well.

Q. And what did you find when you did

that?

A. Well, there are some errors. Some of those were pointed out to me, in terms of the numbering of the document, and one particularly glaring error, there was actually a misnumbering of the sample.

Q. Is that significant to you?

A. Again, I have to judge these things against my medical experience. And in a medical context, if you send a sample to the lab with one number, and a lab slip with another number, they throw it away, because they can't be certain that it belongs to that particular patient, and the ramifications could be harmful, so they force you to retest it.

Q. Let's put GDC 1363 back up on the screen.

You were asked about the use of a testosterone/epitestosterone cream as a possible cause or a way to mask testosterone use?

A. Yes, mm-hm.

Q. Are the epitestosterone values that you see here consistent with the use of a testosterone/epitestosterone cream, in your opinion?

A. So I have to just give you an opinion here, because I've not seen cases of this? But those are very, very low urinary epitestosterone levels. I can't see that somebody who was taking epitestosterone and then having results such as this.

Q. And if the allegation is, for example, that on July 13, some sort of testosterone or testosterone/epitestosterone cream was used, does the epitestosterone value shown there of 7.6 support a belief that an epitestosterone was used?

A. Again, based on sort of no published data that I'm familiar with, it's also a very, very low value, and it's consistent with the baseline value from July 3rd, and the other values during the entire period of time. So I would be very surprised if someone had administered epitestosterone and then gotten that result.

Q. Would you characterize any of the epitestosterone values here as being high epitestosterone values?

A. None of those are high. They're all low.

Q. You were shown an Exhibit 43, which started at USADA 804.

And if we can put USADA 807 up on the screen.

Do you have that in front of you?

A. Yes.

Q. Okay. Great. Let's start with S1.

A. Okay.

Q. Is the data shown on S1 consistent with what you see in this case in relation to Floyd Landis?

A. Not at all.

Q. Why not?

A. Well, again, this is a low-mode individual, first of all, so that's -- Mr. Landis is clearly a high-mode individual, because his baseline T/E is 1.

Secondly, you know, this individual here -- well, that's the main reason, so you don't see much of a bump in the T/E ratio, mainly because this individual is a low-mode individual.

Q. Let's take a look at S2.

Is the data shown on S2 consistent with what you see in this case in relation to

Mr. Landis?

A. No. In fact, this is a nice illustration, again, of why you would expect the T/E to go up at the same time that the adiol and the beta diol go down, and again, you can see that they go down in tandem and parallel one another nicely, so the answer is no.

Q. Let's go on to S3. Is this, the data that you see in S3, consistent with what you see for Mr. Landis in this case?

A. Well, no. I mean, none of these values are even abnormal, so there's not one that's abnormal and one that's normal, which is the problem that I'm having with the Landis results.

Q. Keep going. Let's go to S4. Is the data on S4 consistent with what you see for Mr. Landis in this case?

A. No, but again, a beautiful illustration of how the two tests back each other up. The T/E ratio goes up dramatically here to over a hundred while, at the same time, the isotope ratio, the 5-alpha diol, and the 5-beta diol, go down in tandem, in parallel to one another, and come right back up. So at no point is there one test positive and one other negative.

Q. Let's go on to S5. Is this data in S5 consistent with what you see from Mr. Landis in this case?

A. No, for exactly the same reasons.

Q. Okay. S6. Is the data in S6 consistent with what you see for Mr. Landis in this case?

A. Once again, no, for exactly the same reasons.

Q. And that reason being what?

A. Well, so, this is a high-mode individual, but you can see the testosterone, the epitestosterone ratio goes up dramatically here, peaking at 34, which is pretty high after a single oral dose of 80 milligrams of testosterone undecanoate. More importantly, the 5-alpha and the 5-beta diol follow in tandem with one another, come back up in tandem with another, in almost the same kinetics as the changes in testosterone and epitestosterone ratio.

Q. Let's finish it out with S7. Is the data in S7 consistent with what you see for

Mr. Landis in this case?

A. No.

Q. And why is that?

A. Again, the same reasons: The testosterone and epitestosterone ratio goes up at the same time that the-5 alpha diol and 5-beta diol go down in parallel, and they have exactly the same kinetics. At no point is there a discrepancy between the two tests.

Q. Let's take a look back at the Shackleton paper, which is in Exhibit 40, starting at USADA 1241.

A. Yup. I have it.

Q. Oh, great.

MR. BRUNET: Back to 383?

MR. JACOBS: Yeah. Let's start with this one on Figure 4A.

MR. CAMPBELL: What exhibit is that at?

MR. JACOBS: Which? The table or the Shackleton?

MR. CAMPBELL: The table.

MR. JACOBS: The table is GDC 1363.

MR. CAMPBELL: That was an additional exhibit?

MR. JACOBS: That was provided yesterday, yes. We can provide another copy.

Q. (By Mr. Jacobs) Figure 4A of Shackleton: Is the data here consistent with what you see for Mr. Landis in this case?

A. No. I mean, this is, again, an example of a single injection of testosterone enanthate over two weeks causing a chronic fall and, in this case, the 5-beta metabolite. The 5-alpha is not on this graph. And I don't remember why they didn't run it. But it's a nice illustration of how, as long as the testosterone is present, you should see a chronic and stable fall in the 5-beta diol metabolite.

Q. Let's go on to the next one, 4B.

Is the data provided on 4B, consistent with what you see for Mr. Landis in this case?

A. No, it is.

Q. Why is that?

A. Again, you are seeing that the 5-alpha diol and the 5-beta diol are falling in tandem with one another and paralleling one another nicely throughout the period of 3 mil of

exogenous testosterone. These metabolites really should corroborate one another.

Q. Let's take a look at the next one, which is 4C.

A. You can skip that. It's the same subject.

Q. Okay.

A. Go to 4D.

Q. 4D. Is the data on 4D consistent with what you see for Mr. Landis in this case?

A. No.

Q. Why is that?

A. Again, the 5-alpha diol and 5-beta diol fall in tandem and parallel to one another, and mimic one another throughout the period of the exposure to the endogenous testosterone.

Q. All right. Let's go on to the next one, which is 4E. Is the data you see on 4E consistent with what is shown for Mr. Landis in this case?

A. No.

Q. Why is that?

A. 5-alpha and 5-beta diol are going down and staying down in tandem with one another. Floyd's numbers -- those strange

numbers, they'd be down one day and normal the next. This doesn't look like -- anything like that.

Q. Okay. Going on to -- I think the last one is 4F.

A. I think it's subject -- okay. 4F.

Q. Is the data in 4F consistent with what you see for Mr. Landis in this case?

A. No, it is not.

Q. And why is that?

A. Again, the 5-alpha and 5-beta diol

are paralleling one another. At worst, there's a 1-2 difference between the two metabolites, nothing as large as the 4 that was seen in Mr. Landis' samples.

Q. Now, you were asked earlier if you have any specific experience in your work in doing anti-doping. I just wanted to ask you: Is there any reason to believe that a cyclist, even a Tour de France winner, would metabolize testosterone different than anyone else?

A. No.

MR. JACOBS: Thank you. I have nothing further.

MR. BRUNET: Thank you.

Mr. Young?

MR. YOUNG: Just very quickly.

Could I have Exhibit 34, Page 15.

MR. PADILLA: Todd, the signal, please.

Thank you, sir.

EXAMINATION.

BY MR. YOUNG:

Q. Let's focus on the second slide. Let's focus on this one. And make it a little smaller, so you can see. I want to be able to see that.

At this Week 7, what would you say that the 11 hydroxy 5-alpha diol value is?

A. Looks like it's about a little over 4, maybe 4.2.

Q. And what is it at Week 8?

A. Almost 3. It looks like it's 3.0.

Q. Now go to the next -- so we have 4.2 and 3.0. Let's go to this one.

And what would you say this value is that compares to the 4.2?

A. It looks like about 1.2 to me, maybe 1.3.

Q. So it's 3 delta units different?

A. Three delta units different, yeah.

Q. And how about this one?

A. Maybe 0.7 or 2.3 difference in the delta/delta.

Q. So the 5-alpha is more than four times bigger than the 5-beta. .723.

A. Yes.

Q. And this is just one individual. As you look through this study --

A. Yes.

Q. -- they're all different.

A. Well, so only two individuals in this study actually underwent the IRMS evaluation. So, I mean, the problem with this study is, I think it was alluded to this morning, is there's two things: First of all, we're looking at a different endogenous reference compound, not the pdiol that's been published previously; and secondly, we're talking about one individual.

I think it's really shingling past the edge of the roof to draw too many conclusions from an unpublished study on one individual.

Q. And, in fact, there were three

individuals, two in this study, and then one in the attachment. And the results, in terms of alpha and beta showed that all three people could have different results.

Am I missing something?

A. You would have to show me --

Q. 34 A is volunteer --

A. 34 A, the page number?

Q. It's that exhibit.

A. Oh, 34, appendix.

Q. Right.

A. So you're talking about the Person Number 3?

Q. Right.

A. Mm-hm, yeah. So that is an appendix.

And ask me your question again.

Q. And volunteer P-10 at 14 also has IRMS results; is that correct?

Page 14, it's Figure 18?

A. Yeah, they did it on P10 and P9 in the original study, and Person Number 3 in the appendix.

Q. And when you look at this -- when you look at the -- and particularly, P9 and

P3 -- when you look at the results for the two individuals, it shows you that you can have variation between the two individual studies?

A. In every one of those time points, the T/E ratio is positive. I mean, again, I think these tests corroborate each other fairly nicely. In P9 and P10, during those time points that you mentioned, or Week 7 and 8, the T/E ratio is positive, while you have this high difference between the endogenous reference compound and the alpha diol compounds.

Q. And this is after people have been administered T-gel for --

A. Well, 6 weeks in the case of P10, and then two weeks on, and two weeks off, and then off, and then two weeks on and two weeks off, in the case of P 9.

MR. YOUNG: No further questions.

Thank you.

Oh, wait a second.

Q. (By Mr. Young) Did you happen to listen to the testimony of Mr. Papp?

A. I did not.

Q. Would it surprise you that someone could pass one or more T/E screens while they

were on AndroGel?

A. It would surprise me that somebody could pass that. But again, it depends on how much you use. I know that if an individual used the 100-milligram dose that's used in most of the studies, I would expect them to be positive. If an individual was sort of tailoring a regimen to try to avoid doping evaluation and used a lot less than that, the so-called microdosing, maybe they wouldn't come up positive in a T/E. In either case, I'm not sure it would be of a great utility to cyclists.

MR. YOUNG: Thank you.

MR. JACOBS: Nothing further.

MR. BRUNET: Thank you.

Thank you very much, Dr. Amory.

THE WITNESS: Thank you.

MR. BRUNET: Well, it's now 4:30. We're scheduled to run until 5:00. Our next witness is Mr. Landis, to come back on cross. I would like to have comments from counsel.

I don't expect cross would last less than half an hour, do you?

MR. BARNETT: My estimation from Mr. Jacobs, somewhere between 20 minutes and

60 -- no, I really don't know. I would be surprised if it's less than half an hour. Could be much longer, depending on the answers.

MR. BRUNET: Then perhaps it would be best if we broke for the day, and we resume tomorrow morning at 9:30 as scheduled.

MR. BARNETT: That's fine with us. Can we talk witness scheduling while we're --

MR. BRUNET: Absolutely.

MR. SUH: Mr. Chair, we have -- after Mr. Landis finishes cross, we would call Simon Davis, and that would be it.

MR. BRUNET: And that would be the remainder of the day tomorrow?

MR. SUH: Perhaps, on direct examination, between two and three hours.

MR. BRUNET: And would that be your last witness then?

MR. SUH: That would be my last witness.

MR. BRUNET: So, we can consider arguments on Wednesday, perhaps?

MR. SUH: Yes, I think we might very well be able to, and we can plan on having arguments on Wednesday.

MR. BARNETT: We agree. We may have

one or more rebuttal witnesses briefly tomorrow afternoon and, at worst, carry over to Wednesday morning; but certainly by Wednesday afternoon, we should be ready for closing arguments.

MR. SUH: We would like to have USADA identify who their rebuttal witnesses would be at this point.

MR. BARNETT: And honestly, at this point, what would be best for us is if we could e-mail both the Panel and opposing counsel, and we can do that by, say, 8 p.m. tonight.

MR. SUH: In order to prepare for tomorrow, I mean, if we only have Simon Davis, it would be very helpful if we could know what the rebuttal witness could be.

MR. BRUNET: Is there any way you can provide that information within the next hour?

MR. YOUNG: Yeah, we can do that.

MR. BRUNET: Is that acceptable to you, Mr. Suh, within the next hour?

MR. SUH: Yes, it is. Thank you.

MR. BRUNET: Thank you. Well, closing arguments by Wednesday. That's very

good news.

So we will suspend until tomorrow morning at 9:30.

Thank you.

(Recessed at 5:35 p.m.)

BEFORE THE AMERICAN ARBITRATION ASSOCIATION

North American Court Of Arbitration For Sport Panel

TRANSCRIPT OF PROCEEDINGS, May 22, 2007

UNITED STATES ANTI-DOPING AGENCY,

Claimant,

vs.

FLOYD LANDIS,

Respondent.

PURSUANT TO NOTICE, the above arbitration hearing was held at Pepperdine University, Department of Law, Malibu, California, May 22, 2007, commencing at 9:30 a.m. before Debra K. Resling, RMR, Certified Realtime Reporter and Notary Public.

AMERICAN ARBITRATION ASSOCIATION PANEL

MR. PATRICE BRUNET, 1010 De la Gauchetiere West,
#2260, Montreal, Quebec H3B 2N2, Canada. E-Mail:
Pbrunet@brunetavocats.com.

MR. RICHARD H. MC LAREN, Innovative Dispute
Resolutions, Ltd., c/o McKenzie Lake Lawyers, LLP, 300
Dundas Street, London, Ontario N6B 1T6, Canada.
E-mail: Mclaren@mckenzielake.com.

MR. CHRISTOPHER L. CAMPBELL, Chapman & Intrieri, 2236
Mariner Square Drive, Suite 300, Alameda, CA 94501,
United States.
E-mail: Ccampbell@chapmanandintrieri.com.

MAY 14-23 2007

APPEARANCES

MR. RICHARD R. YOUNG, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MR. DANIEL J. DUNN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 1700 Lincoln Street, Suite 4100, Denver, Colorado 80203-4541, (303)866-0365, appeared on behalf of the United States Anti-Doping Agency.

MR. MATTHEW S. BARNETT, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MS. JENNIFER SLOAN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MR. MAURICE M. SUH, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333

South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. DANIEL L. WEISS, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333 South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. HOWARD L. JACOBS, Attorney at Law, from the Law Offices of Howard L. Jacobs, 4210 Lewis Road, Suite 5, Agoura Hills, California 91301, (818)442-0408, appeared on behalf of Floyd Landis.

MR. PAUL SCOTT, Chief Operating Officer, 2160 Century Park East, #2108, (310)203-0354, Los Angeles, California 90067, Agency for Cycling Ethics.

Participants behind Counsel Table: Caroline Hatton, Larry Bowers, James Padilla; Floyd Landis, Amber Landis, Mr. and Mrs. Paul Landis, Arnie Baker, Michael Henson, Brent Kay, Todd Thompson.

Panel Participants: Dr. Francesco Botré, Rosalie Brunel.

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(Commencing Tuesday, May 22, 2007 at 9:45 a.m.)

MR. BRUNET: Good morning, everyone. Welcome to Day 8 of the USADA and Floyd Landis arbitration hearing.

Before we proceed, the balance of time on both sides are the following as of yesterday: Mr. Landis, 4.4 hours, and USADA, 11.2 hours.

On another matter, the Panel was -- has received a motion to strike the testimony of -- of Greg LeMond, and the Panel has unanimously ruled that the motion's denied. The reasons will be provided later.

Can we have our first witness this morning, please?

MR. BARNETT: USADA recalls Floyd Landis.

MR. BRUNET: And before we proceed,

the parties just reminded me, we need to do appearances.

MR. SUH: Good morning, Mr. Chair. Maurice Suh from Gibson, Dunn & Crutcher appearing on behalf of Floyd Landis, who has just taken the witness stand. With me here at

counsel table are Howard Jacobs, Dan Weiss and Paul Scott, our consulting expert.

MR. YOUNG: Rich Young, Holme Roberts and Owen. And with me are Matt Barnett, Dan Dunn and Jenny Sloan.

MR. BRUNET: Go ahead, Mr. Barnett.

THE REPORTER: Excuse me. Just remind you of your oath.

MR. LANDIS: Yes. Thank you.

EXAMINATION

BY MR. BARNETT:

Q. Good morning, Mr. Landis.

A. Good morning, Mr. Barnett.

Q. I just want to cover some areas with you that you and Mr. Jacobs talked about.

But before I do that, there's one fairly procedural matter I just want to clear up. I asked you a few questions about the sample collection process.

A. Yeah, go ahead.

Q. If we can look at USADA Exhibit 27, James.

Mr. Landis, are you okay -- let's just keep the whole thing. Do you want a hard copy of this?

A. No, I think I recognize it.

Q. You're familiar with the form?

A. Yeah, absolutely.

Q. And just for the record, I'll tell you that the only thing we've obscured for our purposes this morning is your address that you gave in the top left corner.

A. Thank you. I appreciate that.

Q. So you've seen this specific form before?

A. I have.

Q. And you provided Sample Number 995474? That's the sample that we're talking about that brought us all here today?

A. Yeah, I believe that's correct.

Q. On 7-20-2006?

A. Yes.

Q. Okay. When you provided it that evening, you chose the bottles, correct?

A. I did. There's a group of -- well, they have three or four sitting there in packages -- in pairs, and I'm allowed to take one, yeah.

Q. And those are the Berlinger bottles? You're familiar with that term?

A. I believe that's the name, yeah.

Q. After you had -- well, let me ask you. You split the sample into the A and the B bottle.

A. Yeah, I -- well, I give a sample in a -- in a little cup. I -- I picked that cup from a group of cups, and I give a sample of that. And then I take the pair -- a pair of Berlinger bottles -- is that right? -- and then I pour it into the two, correct.

Q. And I promise, for all our purposes, we won't go into much detail on the sample collecting.

But you then confirmed that the bottles were locked, correct?

A. Yeah, as best I could. I mean, I tried to unlock them, and they seemed to be locked, yes.

Q. If we could look at the bottom left page, I just want to confirm your signature. The bottom -- very bottom corner.

A. Yeah, that appears to be my signature on the left.

Q. Okay. And you were signing there, you understood, confirming that there were no problems with the collection procedure.

A. From -- no, from what I could tell, the -- it seemed to be the normal -- it seemed to be the normal process.

Q. Okay. Now, this is -- this the same process that you followed for every other sample you provided during the Tour de France.

A. Yeah, correct.

Q. And each time you signed the form, there was no problem with collection.

A. Not to my recollection, no.

Q. Okay.

We can take that down, please.

Mr. Landis, would you agree with me that professional cycling has a doping problem?

A. I would say that some people in professional cycling have a doping problem, yeah.

Q. Do you think for the sport that it's a -- a big problem?

A. If one person dopes, it's a problem, because it changes the outcome of the race.

Q. Threatens the integrity of the sport?

A. Correct.

Q. And you agree that cyclists who engage in doping should be suspended?

A. Yes, I do.

Q. Prior to the 2006 Tour de France, had you talked with your team doctor about whether or not testosterone would benefit you during the stage race?

A. No, I don't remember talking about that.

Q. Had you ever talked to any team officials about whether testosterone would benefit you?

A. I don't remember talking about that either.

Q. Not something that came up with teammates?

A. It comes up in -- in -- not specifically about testosterone, but the subject of doping, because, as you know, it's an issue of late. It comes up in conversation among cyclists, but to take advice from other cyclists, I mean, it's just in a matter of conversation.

Q. And just so we're clear on time period, doping had come up in conversations with

other cyclists before the 2006 Tour de France.

A. No. I think, over the last few years, it's been a common subject.

Q. But you don't recall ever having specific conversations about whether testosterone is something that would help you during the stage race?

A. No.

Q. Not something you researched on the Internet to find out for yourself?

A. I've looked at Internet sites about doping products before, yeah.

Q. Before the 2006 Tour de France?

A. Yeah, over -- not -- I don't remember exactly what it was, but I'd heard people talk about things, so I thought I'd do some invest- -- some investigating on my own.

Q. And do you recall whether testosterone was one of the subjects you investigated?

A. I think probably anything that I heard about I would check out. I like to educate myself on things.

Q. Let's talk about some of the doping practices discussed by Mr. Papp. Before

Mr. Papp's testimony in this courtroom, had you also heard about the concept of microdosing?

A. I -- in those words, no; but I think I had an idea. I mean, I understood what he meant.

Q. And you understood what he meant based on previous information that you had?

A. Based on discussions with people, I

mean, they would say -- I think it follows logic that if somebody says they would take a small amount to try to play with it, that seems like a reasonable thing, yeah; but microdosing, I can't say I specifically heard that term as a formal way of knowing it.

Q. Have you heard about riders using testosterone patches during the stage races?

A. I'd heard it rumored that people had tried it.

Q. And had you heard specifically certain doctors, German doctors, talking about the use of testosterone patches and where they might be applied?

A. Certain German doctors?

Q. Yes.

A. No. I don't know.

Q. And I'm not trying to be mysterious.

A. No, no, I didn't think --

Q. And let me pull up -- if I can have Alpha 31. I'll just give you a hard copy.

A. Thank you.

MR. BRUNET: Mr. Barnett, Exhibit 123?

MR. BARNETT: Yes, I'd say confidently, without knowing. Exhibit 123 it is.

MR. BRUNET: The parties have agreed

to meet with the legal assistant of the Panel over lunch today in order to review the -- the exhibits, and to make sure that the Panel has a copy of everything in sequence.

Q. Correct. And just for the record, so the record is clear, this is an article about you from July 28th, 2006.

Sorry. We need a verbal response.

A. Oh, oh, oh, yeah, it is. It appears to be, yeah.

Q. And I just want to point your attention to the second page.

You see where it says: "German doctor Kurt Moosburger recently detailed the use

of steroids for recovery." And the quote is --

A. Is that the top of the page there? So it's the second --

Q. Yeah. Sorry, Mr. Landis. It's the second paragraph. Does that help? Second paragraph.

So: "German doctor Kurt Moosburger recently detailed the use of steroids for recovery." Quote: 'You put a standard testosterone patch that is used for male hormone replacement therapy on your scrotum and leave it there for about six hours,' Moosburger told Germany press agency DPA. 'The small dose is not sufficient to produce a positive urine result in the doping test, but the body actually recovers faster.'"

And my only question for you is, is that description of how a testosterone patch might be used consistent with the conversations you had had prior to the 2006 Tour de France?

A. I don't remember exactly what the detailed information about it was. When I say that the discussions took place, what I referred to is that people would talk about things that might be of benefit in cycling. And so the

subject of -- well, any number of -- well, the list we had the other day but, basically, was the things that came up. So I don't remember hearing any details about how one -- one would do it. But, I mean, he sounds like an expert.

Q. And you remember the testosterone patch was one of those potential methods?

A. I've heard of that before, yeah.

Q. Mr. Landis, when you decided to sign with Phonak in 2004, did you consider the number of Phonak riders who had been connected with doping scandals? Was that something that concerned you?

A. Yeah, it did.

(Counsel handed out document.)

Q. Just let me know when you've had a minute to review that, Mr. Landis.

A. I think -- I don't remember word for word, but I think I saw it before, so I'm willing to comment on it, yeah.

Q. Okay. And again, this is another article from, looks like July 29th, 2006, for the record. And the title is: "Six years, 11 doping scandals: The Phonak Legacy."

The article mentions a few riders

who tested positive or had other connections to doping before you were in any way connected with the team, correct?

A. Yeah, I believe so.

Q. And then you said you signed in 2004; is that right?

A. Yeah, in August of 2004.

Q. Okay. And if we look at 2004, it mentions blood-doping violations by Mr. Hamilton and Mr. Perez, correct?

A. It does.

Q. And it was Mr. Hamilton that you mentioned on Saturday that you testified on his behalf?

A. I did. I spoke about my experience with him.

Q. If we move down to the next paragraph, it talks about the "Swiss squad cleaned house by firing key management." And so was that before you joined?

A. That was a discussion that went along with me speaking with Andy Rihs, the owner of the team, as to what they were going to do to solve the previous doping problems, because it was an issue with me.

Q. You didn't want to be associated with a team that had a doping legacy?

A. Well, no. And while I was concerned about it -- I understood that they were going to make changes that they thought were the source of the problem, and I was happy with that.

Q. So after that, it says: "Slovenian rider Tomas Nose was caught with illicit doping practices (products) in his suitcase at the Tour of Georgia, and was fired by Phonak in April." You were at that Tour of Georgia?

A. Yeah, but can I back up a second, and comment on the previous paragraph?

Q. Sure.

A. They -- the blood-doping cases occurred -- with Tyler Hamilton happened after I signed with the team. While still in 2004, they happened after I had already made an agreement with the team.

Q. Okay.

A. Just to be clear.

Q. Thanks for that clarification.

So in returning to Tomas Nose, my

question was just, you were riding at that Tour of Georgia where that incident occurred.

A. Yeah, I was.

Q. Were you aware that at the time -- and this was probably a big deal for Team Phonak, correct?

A. Yeah, I was told about it the next morning, and they said they were going to send Tomas home, and I said absolutely, that's a wise idea. And I think that they were, like they had in the past, trying to make a statement that they're not going to put up with this kind of thing.

Q. And then -- and you can correct my pronunciations wherever I butcher somebody's name.

A. I can't pronounce some of them, believe me.

Q. Santi Gonzalez looks like he was next up with a high hematocrit and was fired by Phonak. Do you recall that event?

A. Correct. Can I go into the detail --

Q. Certainly.

A. -- about the team policy there.

If I'm not mistaken, the UCI hematocrit limit is 50. So when they do a check in the morning, they -- they'll suspend a rider for a two-week period if it's over 50. The Phonak team was very concerned about these whole -- these issues, and so they were more -- more restrictive than the UCI results themselves, because they didn't want anybody even coming close to it. They thought it would be wise to make a statement to the riders that it's unacceptable.

And so the team leader -- again, if I remember correctly, I know that it was a few points less than 50, so I think it was 47. So when he was sent home, I cannot tell you what -- exactly what his hematocrit was, but I know it was over the team's internal standard limit.

Q. Do you recall if that was picked up on the regular UCI monitoring blood test, or was it on a Phonak blood test?

A. It was on their own, and also, I think it was explained to me that, along with the UCI monitoring blood test, there's a very large margin of error there. So I don't -- I don't know how critical it would be in the team over one test. I think they would have been very detailed -- concerned at that point.

As far as UCI, I don't know how they

apply the margin of error, but the team was careful with that too. So, again, I don't want to comment too much on what his numbers were, because I never heard; but, yeah, I remember the incident.

Q. Fair enough, and I just want to make sure that -- that we're clear on that. When you said it was "their tests," "their" being --

A. I believe that was the internal team test, yes, that was not an UCI test. I'm sorry. I forgot the question.

Q. Okay. And that's as a result of the blood test monitoring that you spoke about with Mr. Jacobs on Saturday.

A. Yeah, correct.

Q. That's how it occurred?

A. Yeah.

Q. And then -- at some point, the court reporter's going to throw something at us if we keep talking over each other -- so I will do my best.

Looks like next up is Fabrizio Guidi, who tested positive for EPO, and that B result returned negative.

A. Yeah, and that's my understanding of why they have A and B.

Q. And he kept riding, correct?

A. Yes.

Q. And then in 2006, Sascha Urweider was positive for testosterone, and I'll move it up so you can see.

Do you recall that event?

A. Yeah.

Q. So at least some riders think testosterone will help them, correct?

A. Apparently. They also thought they could get away with it.

Q. And then you -- I think you testified -- and feel free to correct me if I'm wrong. Saturday seems like a long time ago for all of us -- you testified with Mr. Jacobs that a couple of riders had been removed from Team Phonak even though they hadn't tested positive. And I think you said on Saturday, you didn't recall their names.

A. I think, what's on that list there, was, at least Santi Perez was one of them. I don't -- I mean, -- well, if there was a test involved.

Q. Okay.

A. And then -- I don't know exactly how they come up with the criteria, but I think it's -- you could refer to that as a test. I'm sorry if I misspoke on that. And then the Nose one, I think he -- you could qualify that as someone who didn't test positive, correct.

Q. Okay. And what I was -- what I was wondering, too, weren't there two riders who were removed from your team right before the 2006 Tour de France?

A. Yeah, they were suspended until further clarification of what happened, and I don't know if that's been cleared up yet or not.

Q. And that was Enrique Gutierrez and Santiago Botero?

A. Yeah, I believe those names are correct.

Q. And you testified on Saturday that Phonak had a very strict policy about doping. And we've talked about that some here today, correct?

A. Yeah, I mean, you can only control so much, because -- well, frankly, the people that don't live in the same place. Everyone's

spread out all over the world.

Q. I guess what I'm trying to figure out, Mr. Landis, is, if they had a strict policy, and the riders knew that they would essentially be fired if they engaged in doping, why do we have this long list of riders who took that chance?

A. I can't speak for the other guys, what -- what prompted them to decide that it was worth that risk. But I think it's -- the punishment fit the crime at that point.

Q. Do you think that part of what might have caused them to take that risk is that doping is so widespread in cycling that they felt a pressure to dope in order to compete?

A. Again, I can't comment on what their motive was. I would assume they thought it would help. I can't think of another reason.

Q. You don't necessarily disagree with Mr. Papp that riders are under pressure to dope in order to compete?

A. Riders are only under pressure in their own mind. I mean, there's no one out there telling you you have to win. I mean, the pressure is a result of whatever they want from

it in their own minds. So I guess, again, you can -- you could say you're under pressure from themselves. I don't know where the other pressure would come from.

Q. I think you testified that during the time you rode with Phonak that Phonak had a team doctor or maybe more than one.

MR. BRUNET: UCI requires that the team have doctors at the race.

Q. Who was the Phonak team doctor?

A. We had three. Thomas Klimaschka, Holger -- his last name is Huring, maybe. I can't remember exactly how to pronounce it. I just called him Holger --

Q. I don't know enough to correct.

A. -- and Denise Demir was the third, so there's three.

Q. Okay.

A. There was occasionally another Italian guy who, if we had multiple races going on and some of the doc- -- because the doctors aren't employed by the team, per se. They're doctors who come to races and are there to assist with whatever's going on with the races, because they're required to do so. So there

would be occasions where two of them were busy, and there were two races, and so we had another Italian guy that would come down there, but I don't remember his name. I didn't see him so much.

Q. Did you have a closer relationship with any of those doctors than the others?

A. There were a couple of them that were at the races more than the others, so yeah, I became better friends with everybody on the team who were -- well, there's a lot of people on the team. So there was more people who were away from me most of the time than they were with me. And so, yes, there was two of the doctors -- one of them was Thomas Klimaschka and the other was Denise Demir -- and so those were the two who more or less did the races I did.

Q. Has Denise Demir been with you at all this week?

A. She was here, yeah.

Q. You testified about the -- and we talked again about the team monitoring and riders through blood tests. Was Dr. Demir involved in that -- that monitoring process?

A. Monitoring about, internal controls

for the team, yes.

Q. I'm sorry, and I just meant taking the blood tests.

A. No -- sure, yeah, that's correct.

Q. And reviewing them?

A. I assumed she was the one that reviewed them. I don't know. The doctor would have had to deal with that.

Q. You also said something to the effect of -- and I'm quoting off the rough transcript. The court reporter was nice enough to work on them for all of us -- but, "We didn't have too much access, or ways to manage urine profiles."

Can you just explain -- explain what you meant by that in terms of how Phonak was --

A. What was the context of that? Can you read back the whole statement? I don't remember exactly where that came from.

Q. Well -- and let me simplify it.

Did, in your opinion, Team Phonak make any effort to monitor your steroid profile through -- did you give urine samples to the team?

A. No, I never did.

Q. Okay.

A. But I think -- I don't remember the statement there, but I think, what I was referring to is, I heard discussion about them trying to figure out a way to do it so they could monitor the team better, but it never happened.

Q. Okay. Thank you.

Just in terms of clearing up some other facts that came up or didn't come up on Saturday, you testified at length with Mr. Jacobs about what you did on Stage 16?

A. Yes.

Q. You testified about being cold and --

A. Yeah, yeah, yeah, correct.

Q. And the one thing that -- that I didn't hear come up, and I've honestly seen quotes both ways from you in the press, so I wanted to give you a chance to clear it up. Did you have an IV on the evening of Stage 16?

A. I did, yeah.

Q. And what was in that IV?

A. Well, the reason you saw the contradicting quotes was, in the beginning, when

I quoted it, I couldn't remember, honestly. I called the doctor and asked him if I had gotten one. And it was -- it was a mixture of glucose and saline, because I was very dehydrated at that point, and I was cold and shivering, so --

Q. And you rely on the doctor to know what's in the IV, right?

MR. BRUNET: Mr. Landis, sometimes I have trouble hearing you.

A. Sorry.

MR. BRUNET: If you could raise your voice, that would be great. Thanks.

A. No, I would not rely on the doctor. I would check what was in it before. I don't remember exactly what was in it, because I know that it was -- if I was given an IV, because I don't like IVs, I would have checked.

Q. How would you be able to check what's in an IV?

A. It would be written on the bag that it's in. It's in a small little bag, the size of this thing, and there's a label on it.

Q. So you just trust the label?

A. Well, I don't know how else you tell what's in anything. I mean, I hope there's water in here.

Q. Fair enough.

You heard Mr. Young ask Dr. Amory yesterday if he had ever seen the blood tests -- your blood tests profile.

A. Correct.

Q. Do you remember that?

A. Yes.

Q. And you heard Mr. Jacobs say he wasn't aware of what blood tests were being talked about. You know what blood tests were being talked about, correct?

A. No. I mean, I know of blood tests. I don't know specifically what you're referring to. Could you clear that up?

Q. Sure.

MR. BARNETT: If I can have L8 -- and maybe you can help me with the copies.

And just for the record, this is a letter from USADA to Respondent's counsel on May 4th, 2007, which was our second request for documents. Everyone has it, but I will be happy to provide another copy. And I won't enter this separately, because it is an exhibit -- because it is already in the record.

MR. BRUNET: Where is it in the record?

MR. BARNETT: It's in the correspondence. Would it be easier just to enter it as an exhibit?

MR. BRUNET: Not necessarily. No.

Q. (By Mr. Barnett) Have you had a chance to familiarize yourself?

A. I believe I've seen it before, but I'll trust your judgment on what we're supposed to look at here.

Q. Let me take you to Page 2, then. And to Document Request Number 1, which reads: "Provide copies of all documents related to summaries of blood and/or urine tests received by Mr. Landis or any agent of Mr. Landis from Union Cycliste Internationale, Phonak, or any other source without limitation as to time period regarding results of testing performed on Mr. Landis. Specifically without limiting the scope of this request, upon information and belief, USADA's aware that UCI recently provided Mr. Landis with a summary of his blood tests, and USADA believes that this summary would indicate a pattern and profile that is

consistent with doping."

Does that help clarify which blood

testing we're talking about?

MR. JACOBS: Let me object. There's a response from Counsel about this.

MR. BARNETT: And I will be putting that up in a second.

MR. JACOBS: And we've also represented that we don't have this.

MR. BARNETT: And we will be talking about that.

A. I guess this refers to, if I'm not mistaken, the test results from when they do controls in the morning; is that accurate?

Q. I believe that's --

A. Okay.

Q. -- and just to be clear, I believe it refers to that and the Phonak blood tests that you testified about.

A. Oh. I don't know that there's any record of those, to be honest with you. They have a little machine, and they would check it, and it would come up with a number; and then, if you were okay, you'd leave. I mean, it was a matter of seconds, so, as far as that goes, I

can't speak if there's a record or not.

Q. Okay. Fair enough.

A. The UCI results, I sent an e-mail to the UCI to ask for it back in August, I believe.

Q. But you never --

A. I never got it from them, no.

Q. You never received the documents?

A. I didn't. No, I never got them.

Q. Let me --

MR. MC LAREN: So what blood test are we talking about? The one that checks hematocrit level? Which blood test are you talking about?

MR. BARNETT: We're talking about a regular blood test from UCI that -- yes, they check hematocrit levels, among other things.

A. I know that they'll often -- I don't know if they always do it, but I know, in the past, they'll often bring a -- after they do the test, they'll bring to the team bus, at the start, a document showing what each person's values were. So if there's a problem, I think you would have known immediately.

As far as I knew, the documents -- well, I never kept those anyway, but as far as

any other documents, I haven't seen them.

Q. And I just want to put up -- oop, wrong one.

MR. JACOBS: And I'm going to object to this. This motion has not been ruled on by the Panel. It's not appropriate to ask the witness about a pending matter that the Panel has not decided.

MR. BARNETT: Sorry. This is the one I meant to use.

And this is, in fact, the response that Mr. Jacobs referenced earlier.

MR. BRUNET: Mr. Barnett, Mr. Barnett, just a moment, please.

MR. BARNETT: Sure.

MR. BRUNET: Mr. Barnett, just so we can walk the Panel through here. You've just provided us with a copy of USADA's Motion to Compel Production of Documents, as well as the opposition to Claimant's motion, they developed a response personal to the motion. Correct?

MR. BARNETT: Correct, and I'm not going to go into the motion to compel. I simply handed you the wrong copy, but it's something you've already seen.

MR. SUH: Mr. Chair, we'd actually like to know what the purpose of this questioning is. There's motions that went back and forth. We don't -- I mean, we've responded to our motions as they've been set forth. We are awaiting a ruling. Mr. Landis has no personal knowledge of all of the legal motions that have gone back and forth. I don't understand what the point of this particular cross-examination is. And it's an improper cross.

MR. BARNETT: And if I may respond?

MR. BRUNET: Yes, Mr. Barnett.

MR. BARNETT: I'm only asking him in connection with testimony that Mr. Jacobs solicited about various blood tests on Saturday and testimony that we've now heard about regarding the UCI tests, and his statement that he asked for them, specifically. And I'm simply following up on -- on the line of questioning as to whether he received those blood tests. And to be fair, I don't need to put in this Response. I planned on it to be fair, and Mr. Jacobs asked to, so I wanted to put in Respondent's Counsel's Response.

MR. BRUNET: Mr. Barnett, I don't want you to get into a legal argument or discussion with the witness, because that's not the purpose of the -- your cross-examination. These documents are part of the public record. If you want to follow up about questions about the blood test results that he asked UCI, you're free to go there, because he answered you on that point.

MR. BARNETT: Okay.

MR. CAMPBELL: Mr. Barnett, this is Chris Campbell. It seems to me the witness said he doesn't -- said he's not aware of any samples or the records that were provided. I guess I would like to have a representation made by Counsel whether they requested those documents and whether those documents were, in fact, provided from UCI.

MR. BARNETT: And that's what I --

MR. CAMPBELL: I would like to hear that from Counsel.

MR. BARNETT: And that's where I was trying to go. And obviously the only purpose in putting in oppositions -- Respondent's opposition to Claimant's motion to compel was to

answer Mr. Jacobs' concern that they had put in an objection. I was simply going to read their objection to our request and a statement they made and then go into questions with Mr. Landis about whether or not, in fact, those documents were ever received from UCI. I'm happy to proceed in whatever way the Panel wishes at this point.

MR. BRUNET: Just simplify your question and ask him if he's received any blood test results, and make it -- make it simple for him to understand.

MR. CAMPBELL: I also want to have a representation from Counsel that they've requested those documents, and those documents were not provided.

MR. SUH: That we have requested the

documents?

MR. CAMPBELL: That you requested the documents from UCI. Did you?

MR. SUH: We did not request the documents.

MR. CAMPBELL: And did you receive any documents from UCI?

MR. SUH: Nope. We have not.

MR. CAMPBELL: Okay.

Q. (By Mr. Barnett) Mr. Landis, I've handed you a series of e-mails. Can you just take a moment, and let me know when you've had a chance to review those. And these will be marked Exhibit 124.

MR. BRUNET: I have 125. 124 is the article from cyclingnews.com dated July 29th.

MR. BARNETT: Okay. 125 it is.

MR. BRUNET: Thank you.

Q. Have you had a chance to review those?

A. Yeah, yeah.

Q. And if we look at this one, is this the -- the bottom piece -- is that the e-mail you referenced from, it looks like, July 31st, 2006, where you requested from UCI your blood tests?

A. This is the last in a series, I believe. You're missing the others. I sent an e-mail requesting it to Dr. Zorzoli, and he responded saying he wouldn't give them to me. He would give them to the team doctor. So I just wrote down her name in the following one and said go ahead and give it. And that's the

last I remember even considering it.

Q. Okay. And if we look at the second one -- we let our interpreter go too soon. And I won't purport to try to read it to you -- do you have an understanding of what the second e-mail represents?

A. I wish I did, but ...

Q. And just -- I think there's some pieces we can make out. The top is from Erica Peruzzi at UCI; you see that?

A. Yes, I do. And I don't know her.

Q. Neither do I. And it's to Denise Demir, correct?

A. It appears to be, yes.

Q. And I think if we just go to Page 3, we can clear it up for us non-French-speaking people.

MR. SUH: Well, I object. We can't read the French e-mail.

MR. BRUNET: I can translate it for you, if you want.

MR. SUH: Yeah.

MR. BRUNET: Would you like that?

MR. SUH: Yes, please.

MR. BARNETT: That would be great.

MR. BRUNET: We're referring to Page 2? Which sentence --

MR. BARNETT: Yeah.

MR. BRUNET: -- would you like? This is Page 2.

"Hello, Doctor. Following up on the request from the racer dated July 31, last July 31st, combined with the agreement received today by the team management, it is my honor to provide you with the -- -- it's a general translation, but -- the overall data from the blood tests of the racer during the years 2005 and 2006. Yours truly."

The rest is just formulations.

MR. SUH: Mr. Chair, we would renew our objection at this point.

MR. BRUNET: And just for the record, this is dated -- the e-mail is dated August 9th, 2006.

MR. SUH: August 9th, 2006. Okay.

MR. BRUNET: The e-mail was sent by Erica Peruzzi of UCI to an e-mail address that reads DeniseDemir@web.de, with a cc to Zorzoli, Mario, of UCI. Is that a correct pronunciation, Dr. Botré?

MR. BOTRÉ: Yes.

MR. BRUNET: And Phillippe Verbiest of UCI.

MR. SUH: First of all, it appears that, since they have contacted the UCI, and specifically they've been able to print a copy of this e-mail, they could get the blood tests results themselves. We don't have these blood test results in our possession.

MR. BARNETT: And if I can finish my examination.

MR. SUH: This seems to be simply a part of arguing a motion to compel which should not be made a part of this proceeding. I mean, to the extent that they have these documents, I don't even understand what the point is -- this point is now of doing this.

MR. BRUNET: Well, in order for us to rule on the motion to compel, Counsel, we're -- I think we are getting some evidence here today. We haven't ruled on the motion to compel.

MR. SUH: Okay. Thank you.

Q. (By Mr. Barnett) Let's look, now, at the third page of the e-mail chain, and

Mr. Landis, you'll see at the top, this is an e-mail from the Phonak team doctor, Denise Demir, correct?

A. It looks like it, yeah.

Q. And it's to Erica Peruzzi?

A. Sure.

Q. And fortunately, this one I can read: "Hello, Erica. Sorry I respond in English, but my French is too bad. Thank you for sending the results. Unfortunately, I'm missing the last one taken after the TT" -- that means time trial -- "at 22nd of July in the Tour de France. Is it possible to send this results too? Thank you and kind regards, Denise Demir. "

Do you see that?

A. Yeah, I read it.

Q. And does that confirm to you that your team doctor, Denise Demir, received the blood results from UCI?

A. I've never seen these e-mails before. The one from me, I think I remember. But these -- it appears to confirm it, if it's a real e-mail, yeah.

Q. And I'll defer to Mr. Suh, if he

wants the bottom portion of the e-mail interpreted.

MR. BRUNET: The bottom portion of the e-mail is simply the same e-mail that was previously --

MR. CAMPBELL: When were you terminated?

A. August -- well, when I specifically got the letter was the middle of August sometime.

Q. And let me move to Page 4, and I think --

MR. BRUNET: Before you do, Mr. Barnett.

A. Let -- Chris, it was -- sorry, Mr. Campbell -- it was directly connected to the B Sample results that -- the termination, but I can't comment for you on the date. I'm sorry.

MR. BRUNET: Mr. Landis, the e-mail address that appears on Page 3 at the top, in the cc section, was that your e-mail address at the time?

A. It looks like it, yeah.

MR. BRUNET: Thank you.

Q. And I think, with Page 4, that we're

reading from the bottom up, so this is from Erica Peruzzi to Denise Demir:

"Good morning, Denise. The blood test you're talking about is not an anti-doping blood test done after the race and not the one we do in the morning even" --

MR. JACOBS: Actually, it says: "It

is an anti-doping blood test."

MR. BARNETT: You're right. Thank you, Mr. Jacobs.

Q. "The blood test you're talking about is an anti-doping blood test done after the race and not the one we do in the morning. Even though I can understand that these tests may be confused, the exams and analyses are different for those two controls. I therefore ask the right person to send you the info you request. Kind regards, Erica."

And then we move up to an e-mail from Denise Demir to Erica Peruzzi, correct? At the top of the page, Mr. Landis. Page 4, at the top.

A. Oh, sorry. Yeah, I see that.

Q. And Dr. Demir, the team doctor's response is:

"Hello, Erica. Thank you for your immediate response. My fault -- sure, you're right. Floyd also asked for the anti-doping tests especially during the Tour de France, but also for the last two years. Do you know if this" requested -- "if this request is referred to the anti-doping agency? Thanks for your help. Denise."

Is that correct?

A. Yeah, it sounds correct.

Q. And if we look at Page 5, I think we'll answer Mr. Suh's question. This is an e-mail, dated September 13, 2006, from Erica Peruzzi to Travis Tygart at sanctioning.

You know who Mr. Tygart is, correct?

A. Yes.

Q. It says: "Good morning, Travis. As promised, I am pleased to tell you that I spoke with Mr. Verbiest regarding Floyd's blood results. He confirmed that Floyd Landis received all his blood results directly from him, and therefore, can provide you all the papers you need. We may not send you any result or value without his agreement, which is the normal procedure for us. Would you be kind to

contact Landis about his results? He should be able to provide them to you. Hoping that I could give you some more explanation, I remain, kind regards, Erica."

So, we're now all in agreement that you requested the blood test, correct?

A. I stated that in the beginning, yeah.

Q. And Dr. Demir received the blood tests.

A. I can't confirm that. Well, I can confirm also this is a misstatement here. I don't know how Mr. Verbiest would confirm that I received them. I never spoke to Mr. Verbiest about it.

Q. Well, let's go back to Page 3 of the e-mail, Mr. Landis.

A. Yeah.

Q. You were copied on these e-mails, correct?

A. It appears so, yeah.

Q. But you have no idea, as you sit here today, whether Dr. Demir ever actually received the blood test?

A. I don't remember ever speaking to

her about it.

Look, the reason I asked in the beginning was because we were trying to get as much information about everything we could as possible. And this got dropped long after we -- long before we figured out that this was an issue with the urine test. I mean, we stopped talking about it, to my knowledge.

Q. And -- sorry -- I didn't mean to cut you off.

A. No, it's all right.

Q. And you said that -- when I showed you USADA's document request, you said you had seen it before?

A. I've seen quite a few of the briefs, and I think that was one of them, yeah.

Q. So we asked for the blood tests, but you never asked Dr. Demir to provide them, correct?

A. No, I'm not dealing with it at this point. I've got lawyers taking care of things. You can -- if you're willing, you can ask them.

Q. And so, as far as you know, they were never provided to Dr. Amory either, correct?

A. Well, I think I gave you all the information I know, so it follows that you can ask him.

Q. At the end of your testimony on Saturday, Mr. Jacobs asked you why the Panel should believe you. And I think the quote you gave, and I believe I've got this right, but feel free to correct me, was something about, quote: "People being defined by their principles and how they make their decisions."

Is that what you recall saying?

A. Yeah.

Q. And would you also agree with the way my mom always put it: A person's character is revealed more by their actions than their words?

A. That sounds like a good saying, yeah.

Q. With respect to your telephone

conversation with Greg LeMond on August 6th --

A. That's, I believe, a mischaracterization. I didn't -- or on August 6th, okay. I'm sorry, from back then. Is that the first one or the second one, do you know? There was two conversations I spoke about.

Q. The first one.

A. Okay.

Q. You would -- and so to be clear, we're talking about the very first time --

A. Yeah, I got it now.

Q. -- that you called him?

A. I apologize, yeah.

Q. No worries.

Your testimony on Saturday agreed with much of what was said about the call, correct? And -- and let me just -- but you have one key disagreement with what Mr. LeMond -- with your interpretation of Mr. LeMond's interpretation of the call.

A. Are you asking if I agree with what -- what he testified?

Q. Sorry. Let me break it down.

You agree that you called him?

A. I did, yeah.

Q. And you agree that -- you don't dispute that you talked for 39 minutes or 36 minutes.

A. Well, yeah, I don't know, but that seems right. It seems like the right amount of time.

Q. What you disagree is exactly over what you told him?

A. Yeah, precisely.

Q. And in your testimony on Saturday, you said that you saw -- following that conversation -- you said that you saw press reports where LeMond commented that you had called him and confessed to him on the telephone that you had engaged in doping.

Do you remember --

A. Yeah, I do.

Q. -- testifying to that on Saturday?

And do you remember seeing those press reports?

A. Yeah, but I can't identify them at this point.

Q. And so that's where the disagreement between Mr. LeMond lies. You say you didn't confess to him; he says you did. Are we clear on that disagreement?

A. Yeah, that's, I would say, as simple as you can make it.

Q. That sums it up.

Now, in response to these press reports --

MR. JACOBS: Let me -- first of all, object that that mischaracterizes what Greg LeMond said during his testimony.

MR. BRUNET: I'll sustain your objection.

MR. BARNETT: And to be clear -- I'm not characterizing Mr. LeMond's testimony. I'm characterizing what Mr. Landis said that he saw press reports about and what Mr. Landis testified to on Saturday.

Q. In response to those press reports, you posted a message on the Daily Peloton forums, correct?

A. (Nod of head.)

Q. And we have seen that, but let's see it again. And this is Exhibit 118. And if it would help you to have a hard copy, if you want --

MR. JACOBS: Can we provide Mr. Landis with the entire thread that this was a part of, rather than pulling out part of the conversation?

MR. BARNETT: Unfortunately, we can't. And again, my understanding is because the Daily Peloton forums had a server crash, so it no longer exists in that format. I will comment, however, that that's one of the things we requested from Respondent in discovery in an attempt to having to avoid just a snippet.

MR. BRUNET: Before ruling on this, could we -- could the Panel be provided with a copy of it to see if it's pertinent?

MR. BARNETT: And let me be clear. If Respondent's Counsel now has a full copy of the thread, I would be happy to enter it.

MR. JACOBS: I don't. I don't have a full copy of any threads.

MR. BARNETT: My understanding is it doesn't exist, but Mr. Landis has already confirmed that he posted this, so I don't understand what the dispute is.

MR. BRUNET: One moment.

MR. JACOBS: To the extent that we're going to be asking questions about --

MR. BRUNET: One more, Mr. Jacobs, please.

(Panel conferring.)

MR. BARNETT: Do all the Panel members -- Panel members have 118? I have more copies.

MR. BRUNET: I have 118.

MR. BARNETT: Yes.

MR. BRUNET: Now, just so that Mr. Jacobs understands where you're going with this line of questioning, which page are you referring to?

MR. BARNETT: I'm referring to the bottom of Page 2 and the top of Page 3, which is the subject matter of the post that Mr. Jacobs confirmed on Saturday, through Mr. Landis, that Mr. Landis made.

MR. JACOBS: Let me just object. If we're going to ask Mr. Landis questions about postings in the middle of a thread, he should be provided with the entire thread. It's one thing to ask Greg LeMond what he saw; it's another thing to ask Mr. Landis what he wrote, which is in the middle of an entire message board thread.

MR. BARNETT: And, certainly, they can do that on redirect.

MR. JACOBS: No, he should be provided with the entire conversation.

MR. BRUNET: Mr. Jacobs, what I'm reading here on the bottom of Page 2 seems to be in italics, and a quote that -- from Mr. Landis

himself. If the questions are put to the witness as to whether or not he wrote those words, I think that's -- I will allow it.

MR. JACOBS: If that's all it is, that's fine.

MR. CAMPBELL: Mr. Jacobs, who controlled this Web site?

MR. JACOBS: I don't know.

MR. CAMPBELL: So that --

MR. JACOBS: We don't.

MR. CAMPBELL: -- wasn't a Web site within the control of Mr. Landis?

MR. JACOBS: No, it was not.

MR. BARNETT: And, again, I understand it just to be a computer glitch. I'm not trying to suggest anything else; it just no longer exists in its original form. But it was captured --

MR. BRUNET: If the questions are to ask the veracity of those words and whether or not Mr. Landis wrote them and they were not altered or edited, I will allow your line of questioning.

MR. BARNETT: Okay.

MR. BRUNET: But I understand that a

blog is a blog and can be changed afterwards, but this addresses the veracity of the statements here, and it's allowable.

MR. BARNETT: And that's part of what I want to confirm, so let me know if I go astray.

Q. (By Mr. Barnett) Before we ask specific questions about that, Mr. Landis, you testified on Saturday that when Mr. LeMond shared his story with you, it traumatized you. Is that the word you used?

A. Yeah, I think that's a safe statement. I mean, I was going through some problems of my own, and that -- he told that on top of it was -- well, I'll always remember it, for sure.

Q. So if it traumatized you, you can imagine what it must be like for Mr. LeMond to live with that.

A. Oh, I can't even imagine that.

Q. And you also testified on Saturday that -- that of all the things that could happen to a person in their life, that has to be one of the worst, and that you wouldn't wish it on anybody.

A. No, that's absolutely true.

Q. And so given that understanding -- well, let me ask it this way: Have you had a chance to review Exhibit 118 and the quote from the post?

A. Yeah, and I read it the other day, too, when it was up there.

Q. And did you write these words?

A. Yeah, I did.

Q. And given your understanding of what a deeply tragic and personal event this was for

Mr. LeMond, let me just ask you, why you wrote
-- oops. That's not a good highlighter.

MR. JACOBS: If we're getting into why he wrote something, then I'm going to renew my objection. If we're pulling a statement out of a message board thread and we don't have the entire thread, it's -- it's like taking part of a conversation and asking why you said it.

MR. BRUNET: Mr. Jacobs, the witness just confirmed that he wrote those words. I think that in cross-examination you can ask why he wrote those words and have his opinion on this.

MR. JACOBS: Well, it's one thing to

confirm that he wrote it. If you want to ask him why he wrote it, then the context of what was said before is certainly important, unless he can remember it, I suppose.

MR. BRUNET: And he's free to answer about the context.

MR. MC LAREN: He's got personal knowledge of it all. He wrote it.

Q. (By Mr. Barnett) And I don't want there to be confusion on the record, Mr. Landis.

I thought you testified on Saturday that you wrote this because of the comments you'd seen in the press from Mr. LeMond. Is that a fair characterization?

A. Yeah. I think I can help you guys clear up the dispute here.

The way that these work is, it's a Web site with a blog. I'm not laughing at the content, believe me. It's a conversation, and people interject comments on a previous statement at any given point through the thread. They call it a thread, because it's not consecutive, and it doesn't -- it's nonsensical, if you read it in order.

So, anyway, this was, obviously, in response to two things. It was in response to other comments in the thread and, over and above that, it refers to a response to what I read in the press, so both.

Q. And you posted it under the name Floyd on the Daily Peloton?

A. Yes, always.

Q. And I'll continue the highlighting over.

So this sentence that I've highlighted -- sorry for the carryover -- it says, "Unfortunately, the facts that he divulged to me in the hour in which he spoke and gave no opportunity for me to do the same would damage his character severely, and I would rather not do what has been done to me."

Is that the complete sentence?

A. It looks like it, yeah.

Q. So, what I'm really trying to understand is if you were traumatized by this deeply personal tragedy, why did you write that revealing it would damage his character severely?

A. The part that would damage his character more certainly is not the part of

about what happened to him in his childhood. That is -- believe me, that is not something I would share, that he had any control over.

He spoke to me for a few minutes of the conversation about his personal opinion and sometimes knowledge, it appeared that every person who's been on the Tour since him has doped and --

Q. So "the damage his character severely" wasn't related to his sexual abuse?

A. No.

Q. Appreciate that clarification.

If we look at Page 2, in the very next sentence, you wrote, "However, if he ever opens his mouth again and the word 'Floyd' comes out, I will tell you all some things that you will wish you didn't know, and unfortunately, I will have entered the race to the bottom which is now in progress."

Certainly you're not going to claim

that wasn't related to his sexual abuse, are you?

A. No. That was more a message to Greg, because I was upset. I was extremely upset at the time. I felt like -- I mean,

really, what was revealed to me in that conversation led me to believe that, first of all, it was a private conversation. That's why I called him, because he commented before I spoke to him.

And after he revealed that, I felt confident that Greg was my friend, and I thought that he came off as a sincere guy in the conversation. Apart from the fact that I felt awful for him, I enjoyed the conversation with him.

And I was very upset when he came out in the press and mischaracterized what I said. And I regret writing that, but it was more a message to him to please stop.

Q. And your message was, if you don't stop, I'll tell people you were sexually abused as a child. That was your message, wasn't it, Mr. Landis?

A. The message no one else knew. It was between he and I, and I spoke to him directly thereafter about it.

Q. And then below, you referred to him

as not a victim, and a pathetic -- a pathetic human. You were still angry, right?

A. Absolutely. And this refers to his past history of taking out on, on the future winners of the Tour after he won, his -- whatever feelings he had for whatever -- whatever reason, but he's been -- this isn't the first time he's commented on people claiming they've called him and admitted to things. Which I -- I can't speak for whatever people have done, but I was certainly upset that he did it to me, because that's not what I told him.

Q. But the use of the term "victim" was again, entirely unrelated to his sexual abuse?

A. I can't remember why I wrote that in there, but I do not believe I would have written that as a reference to his abuse, because he would be a victim in that case, absolutely.

Q. On Saturday, you talked with Mr. Jacobs about the phone call placed to Mr. LeMond by business manager, Will Geoghegan, correct?

A. Correct.

Q. I think the word you used to describe it in the transcript was "awful."

A. Yeah.

Q. You also testified that you shared

Greg LeMond's story with your team -- was that your defense team?

A. Yeah, the lawyers, and the people that are helping make decisions about this case.

Q. Because it was going to come up in court?

A. Well, I didn't know that, but ...

Q. In fact, you didn't think it would come up in court, did you?

A. I had hoped it wouldn't. I didn't want to be the guy that -- I mean, that -- that's not my place. I wouldn't be the guy to do that. I assured Greg that I wouldn't do it.

Q. And you didn't think Mr. LeMond would come and talk about it himself, did you?

A. I had no idea what he planned to do, but I had to tell my team the contents of the conversation. They asked what took place.

Q. And did you tell Will Geoghegan -- do I have the pronunciation right?

A. Mm-hm.

Q. Did you tell Will Geoghegan about that Mr. LeMond's sexual abuse because he was part of your team that was helping you make decisions?

A. He was also there at the meetings,

and yeah, he was there for that.

Q. Well, didn't you testify on Saturday that he joined your team in August to help you respond to this?

A. Yeah. Well, I've been adding people to the team over the weeks.

Q. Well -- and I want to give you a chance to make this perfectly clear -- did you tell Will Geoghegan because you thought he needed to know it as a member of your defense team, or did you tell Will Geoghegan about Greg LeMond's sexual abuse for some other purpose?

A. No, because I thought he needed to know.

Q. Prior to being fired by -- I believe Mr. Suh actually did the firing -- prior to being fired in this courtroom in Thursday, was Will Geoghegan a paid employee?

A. Yeah, he was paid by me.

Q. Paid by you --

A. Yeah.

Q. -- personally? And now, I just want to make sure I understand the timeline of exactly what happened on Wednesday night. You

already confirmed you were in the room on Wednesday when Will made the call, correct?

A. Wednesday, if that's the day it took place, then, yeah, then I was in the room.

Q. I'm sorry. They all run together.

A. They run together.

Q. So for the record, Wednesday night is the night the call took place?

A. Yes, then yes; the answer is yes.

Q. The night before Mr. LeMond testified.

A. Yes.

Q. You testified, I think, that you were across the table?

A. No, I think, I was on the same side, but at an angle.

Q. And that was at 6:53, correct?

A. I guess so. I mean, if you say so. I don't remember precise time.

Q. That sounds approximately right?

A. That sounds about right, yeah.

Q. Who else was present in the room at the time the call was made?

A. Well, we have a room where we eat dinner. It's maybe the size of this room, a

little smaller. It's probably the size of this room. And it was a table in the middle, and we had some food at the end, and it's kind of a buffet thing, so people come and go on a rolling basis, but that was probably about the end of the point when everybody was there for dinner.

So there was a couple of people

taking food out. I wasn't paying attention to them, and about halfway through the call, I think, Dr. Brent Kay, a friend of mine, walked in, and that was the only people there.

Q. So at the time of the call, the only people sitting at the table were you and Will Geoghegan?

A. Yeah

Q. The next thing that happened was that Greg LeMond called right back, and Will didn't answer, correct?

A. No, he didn't answer. And he said, Greg LeMond's calling me back. You know, I thought, when I heard -- overheard some pieces and bits of him talking on the phone that he must have been talking to somebody. But then he said Greg LeMond is calling me back, and he didn't answer it.

Q. So that went to voice mail?

A. I guess. I mean, he didn't answer it.

Q. And then -- and help me understand this part, because I'm not sure it was perfectly clear on Saturday. It sounded like you, then, left the room?

A. I did, yeah. Well, I talked to him for a second about it. He said -- but that's when he said, "I think I've made a big mistake.

I shouldn't have done that." And we both got up about the same time, and he was staying on the third floor, and I was on the sec- -- or the first floor, of close to the room there, and so I just kind of went to my room, and he left. I didn't know where he went at that time.

Q. And then I think the next thing you said was that you went up to his room?

A. I think I called him, and he didn't answer, so I went to his room and knocked on the door, yeah.

Q. And that's when Will was in the process of receiving the second call from Mr. LeMond?

A. I don't recall if he called LeMond

back or LeMond called him. But there was a phone call taking place. I didn't hear any of it. He was -- he didn't answer the door, but I could hear somebody talking on the other side.

Q. Did you hear Mr. LeMond testify on Thursday that he called Will back and asked him what the purpose of the call was, or something to that effect.

A. Yeah, no, I wasn't trying to deny that the call took place. I just don't know who called who; but nevertheless, the call took place.

Q. Did you hear Will deny that he was

Will and use the pseudoname "Bill"?

A. No.

Q. Did you hear him deny that he knew Floyd Landis?

A. No, I didn't. I didn't hear any words. I couldn't understand the conversation. I was outside the room.

Q. Okay. You just knew he was on the --

A. Well, yeah, I could hear a mumbling sound that somebody was talking. I mean, I didn't know he was on the phone. I mean, I

heard talking. That's all I could say.

Q. Let me ask you -- sorry.

A. No.

Q. How did Will know Greg LeMond's cell phone number?

A. I gave him all my numbers from my phone. We just synced them up. Every now and then, because I would often give people my -- well, I would often give people his number, if I didn't want to be bothered, and they would call him, and he liked to know who was calling.

Q. Once -- you testified that once Greg LeMond called back, you knew there was a, quote, problem, right?

A. Yeah.

Q. You also testified that you

considered calling Mr. Suh, correct?

A. Yeah. I considered a lot of things. I didn't know what to do. I mean, I was in a position, like a few other times in my life, where I didn't -- I hadn't been through this before.

Q. Well, let's talk about the size of the problem you thought you had.

You knew it wasn't a little problem,

right?

A. Well, I guess I didn't really think it the whole way through at that point. A couple of things went through my mind. The first thing was the thought that it was really -- I felt bad for Greg. And ordinarily, if something happens to somebody, I would like to call them myself, and say that it wasn't in any way something that should have happened.

But I -- I just knew that wasn't going to help the problem. So the best thing I could do at that point was to go try to think and figure out what to do. So I just went to my room. I needed time to figure it out, but I knew it was a problem for sure.

Q. And, in fact, didn't Will tell you that Greg LeMond had threatened to call the police?

A. I think he did tell me that after --

after I went to his room -- after the third call, I guess.

Q. And just so the record's clear, the third call, because there was -- I think the record is clear enough.

A. Yeah, I think you got it.

Q. We can spend too much time. So you knew the police may be involved. You knew this was a very big problem, didn't you, Mr. Landis?

A. Absolutely, it was a problem. I didn't know the scope of it. But I knew it was not something that should have happened.

Q. Did you speak to or see Mr. Suh that night?

A. No.

Q. How about Mr. Jacobs?

A. No, I didn't see any of the lawyers that night.

Q. Let's talk about the next morning.

Well -- and let me make sure I'm clear on what you said a minute ago. You didn't call Greg LeMond back, because you didn't think it would help?

A. Well, I mean, what can you say at that point? I mean, as a human, yeah, I wanted to tell him that that's not the way I feel about it, but what can I do? It didn't -- it's going to make me look like I'm trying to smooth something over, when I know there's a problem, but I knew it was a problem.

Q. You knew Greg LeMond was probably --

whatever term you want to use for how Greg LeMond felt that night -- you knew he was probably traumatized by that point.

A. Oh, absolutely; you know, he would have to.

Q. When you came -- so to be clear, you didn't tell anyone Wednesday night. The only people that knew were you and Will Geoghegan, right?

A. I don't remember if I told my wife. I may have told her.

Q. Okay. And I believe the next thing that happens of significance in the timeline is you essentially got up and came to Pepperdine the next morning, right?

A. Apart from whatever morning things you do, yeah.

Q. And one of the morning things you do is you pick out your clothes for that day, right?

A. Yeah.

Q. You didn't wear your yellow tie on Thursday, did you, Mr. Landis?

A. No.

Q. In fact, you wore your black suit,

your black tie, and your black shirt, correct?

A. I did.

Q. The only day you've done that, right?

A. Yeah.

Q. We'll mark this Exhibit 126.

Let me know when you've had a moment to familiarize yourself with this document, Mr. Landis.

A. Do I need to read the whole thing or --

Q. I'm going to point you to a specific paragraph, but you're certainly welcome to take a moment and read the whole thing.

A. No, go ahead. Let's see it.

Q. For the record, this is a article by Mark Zeigler of the Union Tribune, San Diego Union Tribune, written on May 18th. Do you see that at the top?

A. Yeah.

Q. And it's about the events that happened here on Thursday, correct?

A. Yeah, it appears to be.

Q. Generally.

A. Yeah.

Q. Do you see where I'm at on the bottom of the second page, second paragraph from the bottom?

A. Yep.

Q. And it says, "Landis, though, made a sartorial statement yesterday. After appearing in a yellow necktie -- representing the yellow jersey worn by the Tour de France leader -- for the first three days, he wore a black suit, black shirt, and black tie."

We've confirmed that, correct?

A. Yeah.

Q. And then it has a quote from you: "'It represents the end of any credibility Greg LeMond has left,' Landis told reporters earlier in the day."

Is that a quote you gave, Mr. Landis?

A. No, I don't remember giving that.

Q. You never said that?

A. I haven't been making quotes to the press.

Q. So --

A. I --

Q. So Mr. Zeigler just has that dead

wrong?

A. I don't remember saying that, no.

Q. So is it your testimony that you did not, in fact, wear your black suit, black shirt, and black tie as a symbolic statement against Greg LeMond --

A. No.

Q. -- on the very morning you knew he'd received a traumatizing call from your business manager the night before?

A. That's why I wore the black suit, because it was a terrible day. It was a bad thing that happened. It wasn't a day to celebrate wearing a yellow tie.

Q. So it was such a terrible day that you wore a black suit, am I now to understand, in symbolic support for Mr. LeMond?

A. No, it was just -- it was a disaster. There was nothing good going to come out of that day. It was just a bad day. I don't -- I mean, I don't know how to support LeMond after what had happened the day before. It was -- there was no point in me trying to show support. I just didn't want people to think that I was happy about what happened.

Q. Okay. So let's now go forward to what happened once you arrived at Pepperdine law school.

What time did you get here Thursday morning, roughly?

A. Probably half an hour before it started. I don't remember. Again, we've been rearranging the schedule, but I can't remember exactly.

Q. That's fair enough. I don't remember either at this point.

Was Mr. Geoghegan with you that morning?

A. He came down with me, yeah.

Q. Rode with you in the car?

A. He did, yeah.

Q. What time did you tell your attorneys about the phone call, Mr. Landis?

A. Well, Will and I had talked about it on the way down, that I'd need to tell them. And he said he agreed, because he had mentioned it the night before that we should tell them, but we didn't that night.

When we got down here, Dr. Kay had already gotten here, and he had walked in, like

I said, halfway through, so he heard what the next part of the -- what had transpired there, so he had already told them. But it was our intention, when we walked in, to tell them immediately. I don't remember what time it was, but that discussion took place as soon as we walked in.

Q. So your attorneys knew first thing

in the morning that this had occurred?

A. I don't know if --

Q. Sorry. Your attorneys knew even before you got here first thing in the morning that the phone call had occurred.

A. -- the phone call was a matter of minutes, I would mean -- they were still discussing what had happened, so it was just taking place when we got here.

Q. And you recall on Thursday that Mr. LeMond testified after lunch?

A. Yeah, I think so.

Q. So just that I'm sure that I understand, when Greg LeMond was called as a witness on Thursday after lunch, you were sitting at this table, correct?

A. Yeah, yeah.

Q. And you knew that Mr. Geoghegan had placed the call to Mr. LeMond, correct?

A. I did.

Q. And your attorneys knew that as well?

A. Yeah, at that point they had, yeah.

Q. The only thing you didn't know at that point was whether Mr. LeMond knew that it was Will Geoghegan who had called, correct?

A. I had no way of knowing what happened after that.

Q. We talked about this being a bad problem. You knew it would shatter your credibility if it came out that Will had made that call, didn't you?

A. I don't know how that -- I mean, it's bad that he's my friend that did it, but, I guess I assumed he would make a big deal out of it, yeah.

THE REPORTER: He would -- I'm sorry. I didn't hear --

A. On the last part?

THE REPORTER: Yeah. "I guess I assumed he would make" --

A. Make a big deal out of the call. I

mean, it was a big deal.

Q. Mr. Landis, isn't it true that while Mr. LeMond was testifying that you and your entire team sat at this table and hoped that Will Geoghegan's phone call had not been discovered and would not come out?

A. No, I think it's safe to say --

MR. JACOBS: I'm going to object to that question. If he's asking what about what the attorneys did, that's completely improper.

MR. BRUNET: Well, he can answer what he thought. But I --

MR. JACOBS: Well, that wasn't the question.

MR. BRUNET: I agree with your objection that Mr. Landis should not characterize what went on in your head.

A. Well, I can't -- I can't characterize that, but I thought -- I mean, there was no doubt in my mind it was going to be the subject. It should be.

Q. Well, let me ask you this, Mr. Landis: If you were so upset by what Mr. Geoghegan had done, why did you wait until after it came out in the courtroom in order to

fire him?

MR. JACOBS: I'm going to object. I mean, he's going into attorney-client-privileged information. He's going into --

MR. BRUNET: Did you hear the question?

MR. JACOBS: Can you read it back?

(Reporter reread the last question.)

MR. JACOBS: And he's already said he spoke with his attorney, and he's asking him why he did something after speaking with his attorney.

MR. BRUNET: Mr. --

MR. JACOBS: That's a ridiculous question to ask, and it's completely inappropriate. He's going into the attorney-client privilege and work product.

He's asking why the attorneys made certain decisions. We've already established that he spoke to his attorneys first thing in the morning.

MR. BRUNET: Mr. Jacobs, it's well established that there was an employee/employer relationship between Mr. Landis and his manager, and that's the question I heard: Why did you

wait until the end to fire him?

MR. JACOBS: It's also been established --

MR. CAMPBELL: Mr. Jacobs --

MR. JACOBS: -- that he sought legal advice as to what to do, and he's asking him what he did after that.

MR. CAMPBELL: Mr. Jacobs, are you going to direct your witness not to answer?

MR. SUH: Mr. Chair, let me make a comment about what is going on here. And just so we can clear the air on this issue on the timing. I will represent -- I will represent to the Panel that the lawyers heard literally minutes before we went into this proceeding about this problem. We did not have an opportunity to consult with Mr. Landis or Mr. Geoghegan to discover what the issue was.

MR. BRUNET: Mr. Suh, just to be clear. I don't think that your professional integrity here is being questioned. Mr. Landis is being questioned.

MR. SUH: Right.

MR. BRUNET: Your professional integrity is another matter.

MR. SUH: Right.

We believe that it's important, however, for this line of questioning for the Panel to understand what the actual timeline was because the question is clearly directed at the withholding of this information. And that's the problem with this line of questioning, but what we would ask is a reformulation of the question.

Having said that, I do want the Panel to be aware that we did not have an opportunity to either discuss or discover what exactly had occurred, and it -- and I will represent to the Panel, as soon as we did, we made the decision to fire Mr. Geoghegan. We simply did not have time because we discovered it at the eve of returning into this proceeding. Hopefully, that will clear the air.

MR. BRUNET: Mr. Suh, I think you will have an opportunity through -- when it comes your time to redirect the witness.

MR. BARNETT: And I'm candidly concerned that Mr. Suh is objecting on his behalf and not on behalf of his witness who just testified to this Panel that he told his attorneys in the morning.

MR. SUH: The --

MR. BARNETT: I mean, if their interests diverged, we have a problem.

MR. SUH: There is no diverging of interests. The reason why it's important to provide this background to the Panel is because there is an explanation of why the privilege objection applies.

I mean, more than anything, we want Mr. Landis to answer every question which is being asked. We do, however, want to be careful that those questions don't go into privileged conversations. We don't -- we don't want at all to direct Mr. Landis not to answer a question.

We would ask that the question be formulated, but I do want the Panel to be aware that -- what had happened, so that the Panel understands the privilege issue involved, is that the attorneys had learned about this issue minutes before going into this proceeding. And that after we went into this proceeding, we took the opportunity to find out what occurred -- we were completely caught off guard -- and then made a decision to terminate. And this is all part of this discussion.

MR. BARNETT: And if I may respond just briefly. To the extent that there was any privilege attached to that specific communication, it was solicited during testimony by Mr. Landis on Saturday in questioning from Mr. Jacobs. That's where this first came up about him talking to his attorneys. It was not with us today.

MR. CAMPBELL: Are you saying they waived the privilege?

MR. BARNETT: I'm not going to ask questions about what his attorneys told him or what he told his attorneys. I'm just saying that any privilege argument here has no merit.

MR. JACOBS: I don't recall going into specifics of conversations between Mr. Landis and Counsel at any time.

MR. BARNETT: And neither am I --

MR. BRUNET: And I don't want to hear that testimony from you, Mr. Jacobs, either.

THE WITNESS: I think that's because the discussion was about --

MR. BARNETT: Whoa, whoa --

THE WITNESS: -- between --

MR. BARNETT: There needs to be a

question pending, Mr. Landis. And I would like my question read back.

A. I'll answer your question. I think that's what I was trying to do just now.

Q. I'm happy to have you answer the question.

A. Okay. Can you read it back exactly how it was?

Q. Yes.

(Reporter reread the question beginning on Page 1411, Line 22.)

A. I -- everything I did after I got here in the morning and discussed it with the lawyers was based on what they advised me to do. In hindsight, I don't know if it would have been better to fire him immediately. Some problems are solved on the spot -- and they only get worse if you wait and solved it. And others get worse.

And this is one of the things that I couldn't change, and I didn't know what to do. So I wanted advice, and that's what happened. I mean, in hindsight, yeah, I probably should have fired him immediately, but I needed to -- to

talk to somebody, I knew.

Q. Fair enough. And I just -- because of the confusion created by the testimony of Counsel, I want to make sure that your testimony isn't lost.

Your testimony is that your attorneys knew early in the morning, correct?

A. No, no, no. No, that's not it.

Q. Did you --

A. I didn't answer it, I know. But I said I got here a bit before the hearing started. I can't remember what time it was, but you -- when you said that I told them early in the morning, I said, no, that's not accurate. I said I got here something like a half hour before it started. That's when I arrived.

Q. Okay. So your problem is with "early in the morning."

A. Well, yeah, that's a general --

Q. Let me help you with the timing because I do know quite seriously that all these days run together for all of us.

Thursday was the day that we began with the witness, Claire Frelat. Do you remember Ms. Frelat? The blonde-headed --

A. The blonde -- yeah, got it.

Q. Do you recall there was a long morning break where the attorneys had a meeting with the Panel in chambers?

A. No. I mean, I assume it probably happened. I believe you.

Q. Do you have the time sheet?

Well, let me just represent -- and the record will reflect -- there was a long morning break. But, more simply than that, there was another meeting in chambers at the end of lunch before Mr. LeMond's testimony.

Is it your testimony that you had already discussed this issue with your lawyers before lunch?

A. Yeah, that's just what I said. I told them as soon as I arrived here.

Q. Thank you, Mr. Landis.

Mr. Landis, you and your team have made some fairly strong public statements about this doping case, haven't you?

A. Yeah, you could characterize it that way.

Q. Do you recall an Internet posting where you referred to this case as a "war"?

A. I may have. Do you have a copy of it?

Q. Certainly.

MR. BRUNET: Mr. Barnett, we'll recess for 15 minutes.

Q. Thank you.

(Recess taken from 11:06 to 11:45 a.m.)

MR. BRUNET: Welcome back.

MR. BARNETT: There's one issue we

would like to clarify for the record.

To the extent I asked any questions relating to the timing of disclosures related to Mr. Geoghegan and any related questions, both parties would like to clarify for the record that those questions were in no way to suggest impropriety on the part of Respondent's Counsel.

MR. BRUNET: The Panel agrees with that understanding.

Q. (By Mr. Barnett) Mr. Landis, you recall earlier, I asked you some questions about your black suit, correct?

A. Yeah.

Q. And I just want to go back to that for a minute.

This was previously entered this as Exhibit 126, and I just want to make sure that I have your testimony correct.

Let me know if we need to find you the hard copy again.

A. No, no, I saw it.

Q. The quote that I read from you, I believe you said that wasn't given by you to Mr. Zeigler, and I just want to make sure. That quote wasn't given by you to any member of the media?

A. If I said something in passing to the media that -- that certainly was not it; and if he thinks that is what he heard, I don't know when that would have happened.

Q. Okay. Thank you.

Mr. Landis, did you give an interview to Bicycling Magazine recently?

A. Recently?

Q. Well, I'm not sure when it was given, but to Bicycling Magazine that has your picture on the front?

A. Yeah.

Q. Are you familiar with that?

A. Yeah.

Q. Let me give you another copy, and we'll enter it as Exhibit 127.

And you're familiar, generally, with the contents of the article?

A. I am. I don't have to read it.

Q. I only have a quick question, so we won't go through the whole thing.

A. Sure.

Q. Who was this written by?

A. Loren Mooney, I believe. I didn't look at the credit, but she's the one I spoke to.

Q. And who is Loren Mooney, in connection with you? Do you have any connection to her?

A. Yeah, she's an author of a book that

I'm writing.

Q. I just want you to look at the very last section of this article, if you would. Do you see the highlighted portion?

And it reads, for the record, "And then he offers up what on the surface is a bit of advice for his adversaries, but ends up sounding more like a warning: 'You don't want to be the one fighting the crazy guy with

nothing to lose,' and then begins to laugh. 'Don't poke the crazy guy.'"

Did she quote you right, Mr. Landis?

A. Yeah. You never heard that saying?

Q. It all depends on the context, I guess.

Let me enter as an Exhibit 128.

Take a minute to review this, Mr. Landis, and let me know when you --

MR. JACOBS: Do we get one?

MR. YOUNG: Yes. Sorry.

Q. And my questions are really just about the third part. You're welcome to read it all.

A. That's fine. Go ahead.

Q. That's the wrong one.

Did you have a Floyd Fairness Fund event at the North Park Theater on Monday, I think it would have been May 7th?

A. I did.

Q. And Will Geoghegan made the introductory remarks at that event?

A. If I remember correctly, I think he did.

Q. There's a quote here that says,

"This," Will Geoghegan, Landis' business manager, said in his introductory remarks, "is about what doing it takes to win."

Do you remember him making that comment?

A. No, but that's what it says there.

MR. BARNETT: Thank you, Mr. Landis. I have no further questions at this point.

MR. BRUNET: Mr. Jacobs.

EXAMINATION

BY MR. JACOBS:

Q. Good afternoon.

A. Hello.

Q. If you have Exhibit 124 in front of you -- Do you have that?

A. I happened to carry my papers back there and left them on the table, if someone wants to get them for me, or you can just bring it here for me?

Q. I have mine that's marked. It's the article --

THE REPORTER: I have one.

MR. JACOBS: Thanks.

MR. BARNETT: If we could use the court reporter's.

Q. Thanks.

I wanted to go through some of the riders -- or actually, all of the riders listed here with the doping issues.

The Tyler Hamilton case arose before you were with Phonak, right?

A. Yeah, between the time I signed and the between the time I started employment there.

Q. How about Santi Perez case, is that --

A. Same.

Q. -- same thing?

What did Tomas is it -- how do you pronounce that?

A. "No-zay" we called it. I don't know if that's right or not.

Q. Did that case arise before or after you started with Phonak?

A. It was during the time I was with Phonak.

Q. Did you ever see Mr. Nose using any performance-enhancing substances?

A. No. I wasn't the one that saw whatever it was that was seen with him.

Q. Santi Gonzalez. Do you remember

what his situation was?

A. There was an issue, I think Mr. Barnett spoke about it, about the hematocrit issue. I think that's right. But, that's what I remember. If there was something else, I don't recall it.

Q. And that was from an internal control done by the team, right?

A. Correct.

Q. Do you know if the other teams at the level of Phonak did similar internal controls?

A. I have heard that some teams do, but I don't know what their protocol is or what they do. I think it's a pretty well-known thing that most teams do; but again, I can only speak for the teams I was on, so ...

Q. That was going to be my next question. When you were at the U.S. Postal Service, did they do internal controls?

A. Occasionally, yeah.

Q. What types of internal controls they did?

A. The same, just to check blood numbers to make sure people weren't doing something that they weren't supposed to be doing.

Q. Fabrizio Guidi, did his EPO positive occur while you were with the team?

A. Yeah, it did.

Q. Did you ever see Mr. Guidi using any performance-enhancing substances?

A. No. No.

Q. Sascha Urweider, his positive arose while you were at Phonak?

A. Yes, correct. 2006, I believe.

Q. Did you ever see Mr. Urweider using any performance-enhancing substances?

A. No.

Q. The next two that are mentioned in this article are Jose Enrique Gutierrez and Santiago Botero. Is it your understanding they were somehow caught up in the Operation Puerto scandal?

A. That was the reason for -- because there were discussions among the management, and I was among them, because they wanted to know. I was the leader of the Tour, a leader of the team at the Tour, and they wanted to know what my opinion was, as to what -- how they should go

about dealing with the Puerto thing, because there was a lot of allegations, and there was some documents -- and there was not a lot -- well, we didn't know exactly what was going on. And we came to the conclusion that it was best if there was a risk of them being involved that we did not have them in the Tour, because that was not the way we wanted to race the Tour.

Q. And as far as you know, has your name ever come up in connection with Operation Puerto?

A. No.

Q. And when you're training in Europe, where do you live?

A. I lived in Gerona. It's a city about an hour north of Barcelona.

Q. And who did you live with there?

A. Dave Zabriskie.

Q. And who is he?

A. He's a friend of mine who I raced on the Postal Service. We raced there together and got to know each other well, and so we were sharing an apartment. I mean, to be fair, we weren't really there very much at the same time. We would come and go at different races, and we

kind of just shared a place to crash.

Q. When you're training in Gerona, who do you usually train with other than Dave Zabriskie?

A. Most -- for the most part I train by

myself. And if I did train with anyone, it was him. But people -- other people would -- we would run into other people, and I would train -- whatever other Americans were there. If we happened to be on the same ride. When Tyler was there, occasionally I'd ride with him, but it would be rare. The same said for the other guys, Van Velde, a whole -- a whole list of them. The majority of the Americans lived there.

Q. And when you're in California training, who do you usually train with?

A. By myself.

Q. When you were with Phonak, did the team get together for training camps ever?

A. Yeah, ordinarily in the beginning of the season, we would have a team training camp get together, and everyone was there for a period of ten days. And that generally was the only time we would all be together. After that,

we'd go our separate ways, and we'd meet up at races.

Q. You were shown an article which had a quote from a Dr. Moosburger?

A. You're going to have -- oh, the German doctor? I think that's right.

Q. Right. It was in Exhibit 123.

A. I remember that now.

Q. Do you know Dr. Moosburger?

A. No, that's the first I've heard of him --

Q. You've never --

A. -- or her.

Q. -- spoken with him?

A. No.

Q. Now, the other day you heard Joe Papp testify that he thought that testosterone gel helped him with recovery, right?

A. Yeah, I heard that.

Q. Back at or before the time of the 2006 Tour de France, did you have any belief as to whether or not testosterone or testosterone gel could aid in recovery?

A. I didn't know. I had no reason to believe one way or another, apart from the

rumors I heard, so I didn't spend much time thinking about it.

Q. And during that same time frame, did you have any understanding one way or the other as to whether testosterone in gel or some other form could help with endurance?

A. Again, no. I'd heard different people say different things, and some said they used it, and it was useful. But I don't remember who it was, or -- not cyclists. But no, I don't have an opinion on it. I've never tried it.

Q. Can we put GDC 1363 up on the screen?

Now, USADA's claim, among other things, is that the July 23 test shows use of exogenous testosterone. Let me ask you: July 23, was that the last stage of the Tour de France?

A. Yeah, that's the final stage.

Q. And describe that stage for us.

A. It's the day following the last time trial, generally. That's the way they've done it the last 20 years. That's more or less a formality. I mean, they sprint at the end, but

it's a pretty easy stage. So there's never a risk of losing the lead there.

Q. Going into that stage, did you have any expectation of having to put out any significant effort for the stage?

A. No, it's by far the easiest stage in the entire race.

MR. JACOBS: Thank you. I have no further questions.

MR. BRUNET: Thank you.

MR. BARNETT: I have nothing further.

MR. BRUNET: We'll be back at quarter after 1:00.

Thank you.

(Recessed from 12:04 p.m. to 1:50 p.m. for the noon hour.)

MR. SUH: Mr. Chair, Mr. Campbell, Mr. McLaren, there's a follow-up on one issue that the Panel had raised. We have intercepted, on the way back to the airport, Denise Demir, and we've obtained a summary sheet of the blood serum values. And as soon as we get it, we will provide it to Counsel for USADA and the Panel.

MR. CAMPBELL: Thank you.

MR. BRUNET: Any comments?

MR. SUH: It's a one-page summary sheet. We don't have any other information. If USADA intends upon using it, we'll need calibration information about the instrument just so we know what the measurement of error is with respect to -- with respect to the values, but we can address that. If USADA intends upon using that in the rebuttal case, given the fact that it is now introduced, we would respectfully ask for just a few minutes on the telephone with Dr. Amory to clarify the issues.

MR. BRUNET: That's fine.

MR. YOUNG: And our response is that we would be glad to finally get it. I'm a little puzzled. This is information that she had with her all the time that she was here?

MR. CAMPBELL: You want to talk to Counsel about that, or you want to put it on the record, Mr. Young? It's up to you.

MR. YOUNG: I guess I would like that answer. And I guess if she becomes a witness to talk about that, then I can ask her.

MR. SUH: I don't know the answer to that. I just found out.

MR. BRUNET: Will she come to testify?

MR. SUH: I don't plan on calling her.

MR. BRUNET: I think that was Mr. Young's question.

MR. CAMPBELL: Does he want to call her?

MR. BRUNET: Do you want to call her as a witness, Mr. Young?

MR. YOUNG: I don't know at this point. You know, I guess I would want to see what we see and see what form it's in.

MR. BRUNET: Mr. Suh, would you advise Mr. Young when she gets here so he can make that decision at that time?

MR. SUH: Okay. I haven't spoken to her myself.

MR. BRUNET: Our next witness is Dr. Simon Davis. And we've come back late from lunch. I apologize. The parties have been meeting in chambers with us raising -- Counsel for USADA raising an objection with respect to -- regarding the process that the next witness will be using. Counsel for USADA raised

an objection regarding the timeliness.

We met in chambers and received comments and arguments from both parties regarding the upcoming testimony from Dr. Davis.

The right for a party to cross-examine a witness is not only fundamental to the party, but is also very important to the Panel to understand all the issues; however, this is an arbitration process, and we are pressed for time. And the Panel is interested in seeing the evidence and understanding the process, but, at the same time, bears in mind that Counsel for USADA may not have had the opportunity to adequately prepare technically in order to ask all of the appropriate questions to the witness that is about to testify.

Counsel for Mr. Landis has offered that the software that Dr. Davis will be using be provided to Claimant right after this hearing, after 5 p.m., and that their experts may be able to analyze the data or work with that software tonight until tomorrow morning.

Assuming that that will take place

and that will be done, then the Panel has no objection, at this present time, to receive the

testimony of Dr. Davis, and the Panel would also like to hear tomorrow morning how that process with the software took place and how -- these are extremely technical issues that the Panel understands to a certain point, but certainly not to a point where the lab technicians and the experts can understand them.

So we will proceed with the examination of Dr. Davis with the presentation using the software.

Is this clear to the parties, or do you have any questions for clarification?

MR. YOUNG: We understand the Panel's ruling.

MR. SUH: We would now call Dr. Simon Davis.

WHEREUPON,

SIMON DAVIS, Ph.D.,

the witness herein, having been first duly sworn to state the whole truth, testified on his oath as follows:

EXAMINATION

BY MR. SUH:

Q. Good afternoon.

A. Good afternoon.

Q. Could you tell us about your educational background?

A. I first studied biology and environmental biology at Oxford Brookes University. Following which I went on to do my second degree, a Ph.D., which I did at Liverpool John Moores University, and then I went off into the world of work.

Q. And what did -- was your field of study at -- when you got your Ph.D.?

A. Mass spectrometry. There was a little bit of element of application, but in stable isotopes mass spectrometry.

Q. And when you went off into the world of work, can you tell us what jobs you've held?

A. Well, my first job was more of a bit of a holiday, really. I went down for two years in Africa working for the FAO, where I did some research looking at forestry repopulation. After that, I returned to Liverpool, John Moores University, where I took on the position of laboratory manager, I stabilized the laboratory, and I worked on one of the old MicroMass machines, a precursor to the IsoPrimes, they call the VG602, one of the very first stabilized

versions of mass spectrometers.

Following that, I moved on to work for the manufacturer, MicroMass, and I'm starting at the bottom as a testing installation engineer, where I really learned quite a bit about mass spectrometry, probably more than during my Ph.D., if I was being quite honest.

Q. And the time frame that you were working as a laboratory manager was?

A. I believe it was about two years. Although I could be corrected. I haven't looked at my CV for many years.

Q. Would that have been about February of 1995 when you began?

A. I believe so, yes.

Q. And during the period you were a laboratory manager, could you just describe your duties and responsibilities?

A. To make sure that the instruments were working correctly. To make sure that any reagents or standards that were used were correctly prepared, stored and applied to any analytical techniques.

I also managed the time allocated to what -- the academics and the students, so they

could carry out their own research. Just a general day-to-day running and maintenance of quality, and quality checks within the laboratory.

Q. And that laboratory had a GC/C-IRMS instrument?

A. Actually, it didn't. That was a dual inlet IRMS instrument. Like I said, quite an old one. This was, this actually pre-ran GC stuff.

Q. What was your next job from that?

A. After I left Liverpool, I think, as I said, I went off to work for MicroMass as a testing installation engineer for the IsoPrime.

Q. And what is MicroMass?

A. MicroMass was probably the second-largest manufacturer of mass spectrometers in the world. It was purchased a few years back by a U.S. company called Waters, still owned by them, and they are the manufacturers of many mass spectrometers, not simply stabilized mass spectrometers. They do a lot of organics, the GC/MSs which we will be talking about, and a range of other mass spectrometers you would not be interested in,

I'm sure.

Q. And what were your duties as a stable isotope mass spectrometry systems engineer at MicroMass?

A. It was my responsibility to take an instrument -- to come directly from the -- from fabrication to the subcontractors. And I would have to build anything that wasn't quite finished by them, switch it on, test it, ensure that it was meeting specifications laid down by MicroMass. That instrument would then be shipped to a customer site which would be anywhere in the world, and generally was anywhere in the world.

I'd have to fly out after it, and then sometimes, in the quite extreme conditions, get the thing working properly on the site. So until I got up to a point where we signed the instrument off, where the customer reviewed the specifications of the instrument, and compared those with contracts. And once that was agreed that those specifications would be made and signoff was given, and the instrument was, then went into warranty.

Q. And after that, did there come a

time when you moved for a period of time to the United States for work?

A. Yes. That's one -- during one of my installations, I was at Lawrence Berkeley National Laboratories, and during that period I was offered a job to stay there as a research scientist and a staff scientist, which I truly took as a very great opportunity, and I had two wonderful years in San Francisco.

Q. And what did you do after that?

A. While still in San Francisco, I was still doing some contracting work for MicroMass, and they asked me to come back in the role of development, which is what I had always wanted to do. And although San Francisco is a great opportunity and great fun, that's the choice I made. So I moved back to the UK and came back as a development project leader for the IsoPrime.

Q. And when you say the MicroMass IsoPrime, what are you describing?

A. I'm describing a stabilized ratio mass spectrometer -- excuse me -- stabilized ratio mass spectrometer identical to those used in LNDD and many of the doping labs throughout

the world.

Q. Okay. And when you say you were in charge of the development of the IsoPrime continuous flow product range, what do you mean by that?

A. I -- there were two -- there were two development engineers during that period: Myself and Mr. Tim Brockwell, so Dr. Tim Brockwell.

Dr. Brockwell worked on the dual inlet, and I worked on the continuous flow side. The dual inlet, just to give you some description, is where you're dealing with large bulk samples for very high precision, much higher precision than we're talking about in the GC work. GC work works under a continuous flow. You have a flow of helium which carries gas through the system and allows you to measure much smaller samples with a little less precision, but you can also get separation of different compounds, which particularly in this sort of analysis, is extremely important if you have very complex substances or, as we call them, matrixes, such as urine samples.

Q. And then, after that, what job did

you hold?

A. After working for MicroMass in development, I was then offered a position at Queen's University in Belfast, which I duly took, working with Wolfram, actually, just so you know the link. Dr. Meier-Augenstein, I should say.

Q. And when you worked with Dr. Meier-Augenstein, what were your duties and responsibilities?

A. They weren't -- I mean, I had to write my own grant applications; I had to do research. I also had to do some work towards developing forms of laboratory management system, although they weren't accredited, we did have our own internal structures.

I was working with the MicroMass systems. As you've already heard, there were 14 or 15 instruments at Queen's University, which I think Wolfram rather guardedly said it was the biggest in England. To the best of my knowledge, it is one of the biggest laboratories in the world. I do not know another laboratory with the most stable isotope mass spectrometers in it.

So my job was to work with I think it's five or six IsoPrimes, and one of the rare IsoPrimes, which is exactly the same as the LNDD ones, the old JA series IsoPrimes.

Q. When you say exactly the same as the one in this situation, do you mean the older IsoPrime or the newer IsoPrime?

A. Sorry. Yes, there are two IsoPrimes in the LNDD. There's the JA 10, which is the oldest IsoPrime. You can tell it's the oldest one because it's denoted by the JA series. And then there's a second IsoPrime, IsoPrime 2, which is, I think, JB -- I think it's 245 is the serial number. I could be wrong. It might be 247.

MR. BRUNET: I'm sorry, is that JB as in bravo?

A. Bravo. Yes, JB as in bravo. I'm sure of the JA series. I might have the number wrong on the JB. I might be off by a few points there.

Q. And after that work experience at the Belfast lab, what job did you take?

A. Well, it's not so much a job, but myself and a number of colleagues from

MicroMass, we established our own company, Mass Spec Solutions, and developed our own mass spectrometer range of continuous flow peripherals for stable isotope mass spectrometers. We also sell what's known as a time-of-flight mass spectrometer, which is a little like the MS/GC, which we've been talking about -- the GC/MS, sorry -- but somewhat different in the way it detects the actual compounds.

Q. And were you responsible for helping to design and develop that instrument?

A. Yes, but the main gentleman who designed the ion optics is an incredibly clever chap called Tom Merren, so I don't want to take all the credit for that. But, yes, I did most of the drawings, most of the -- most of the stuff to do with the source. I'm sorry. These are probably technical things which will come out later. But, yes, I did a major part of the design with that instrument.

Q. And did you also, at a period of

time in your experience, work in running an anti-doping laboratory?

A. I didn't run an anti-doping

laboratory. I was -- this was -- well, I was still -- are you talking about the world's strongest man?

Q. Yes.

A. Yes. Okay, this is while I was still at Queen's University and it did stretch over into -- into the development -- the start of the new company. I later dropped it because of the pressures of the new company, and it's now being done by somebody else. But I helped an organization called IFSA. I apologize. I don't know what IFSA stands for, but it is the organization behind the world's strongest man. They came to me and asked if I could help them develop what they call a health program to deal with what was a problem -- of course, still is a problem -- within that field of drug abuse.

So myself and Mr. Tony Banks, who's a senior orthopedic surgeon within the UK -- he was chair of the educational committee for the Royal College of Surgeons -- we worked together to produce what we call the health program where we were able -- I dealt with the doping-control side, and he dealt with the more medical issues.

What we didn't want to do was pin

ourselves down to simply be able to do GC/MS testing or GC IRMS testing or any other test. We wanted to be able to look at physiological aspects, which currently are not -- I don't think they're really applied in WADA yet, but we were doing blood tests, took liver functions and any other signs of doping control. So before the athlete even competed, we were able to go in there and see whether there was any signs of drug taking before even doing the drug tests.

And it was quite -- I believe it was quite successful. And I believe we did actually change many people's attitudes.

Q. And that laboratory, or that project, was not a WADA-approved --

A. No. The analysis was carried out at Hall Analytical which, although it's not WADA-accredited, is ISO 17025-accredited, as are all the WADA labs. And also it has a GLP accreditation, good laboratory practice, which is quite a tough -- tough hurdle to get over, I think, most managers would say it was above that of the WADA accreditation, but not specifically for drug taking -- drug testing, I have to say.

Q. How did you come to become involved

in this case, Mr. Landis' case?

A. I've been asked this a few times. I'm not entirely sure. I think I was approached by Howard Jacobs and asked if I could help out or at least look at the information.

Q. And what documents have you reviewed in conjunction with this?

A. I have seen the full document package, however many thousands of pages that may now be.

Q. And what else did you do in preparation to become familiar with the facts of the case?

A. Numerous telephone conferences, numerous visits, a whole range of different things.

Q. When you say "numerous visits," did some of those visits include traveling to LNDD itself?

A. Yes, I'm very familiar with that part of Paris, yes.

Q. If you could, Dr. Davis, can you explain to the Panel, in as simple terms as possible, what the theory of carbon isotope ratio testing is?

A. For drug testing?

Q. Yes, in an anti-doping program,

specifically for exogenous testosterone.

A. The details can get quite complex, and I'm not a biochemist, so I shan't go into too much of the biochemistry. But the principle is very simple. The principle is that you have what we've been referring to as the endogenous reference compound. This is a compound which doesn't interact chemically in any way with testosterone. It's something which stays stable, irrespective of what you are or you are not injecting or imbibing or rubbing gels of testosterone into your body.

So, therefore, the endogenous reference compound stays stable. If you take testosterone, then your testosterone changes, and the post cursors, the breakdown products of the testosterone then change chemically and isotopically.

Now isotopes -- I'm not sure if those have been described to you properly. But we are interested in carbon isotopes. Carbon has a mass of 12. This is just a relative mass; hydrogen has a mass of 1, and we go up, up the

scale until you reach the carbon. But that's the elemental -- the elemental composition of carbon is 12.

We also have an isotopic composition where you have within the nucleus of the atom, you have an extra neutron. A neutron is neutrally charged. And that atom has to be electronically balanced. So if you've got an electron, which is negatively charged, or a proton, which is positively charged, things start falling apart and that's where you get an isotope which is radioactive.

Whereas, if you put a neutron in, then it stays pretty much stable. So you have what we refer to as a stable or an unradioactive isotope. And most elements within the tier of the table have some form of stable isotope.

And within nature, and within our bodies and within the general environment, the different types of carbon interact in different ways. Carbon 13 is a little heavier, so it tends to interact a little different than carbon 12.

A good example is, actually, if we look at the isotopes of hydrogen. If you take a

glass of water, you have -- you have hydrogen and deuterium. Deuterium is a little heavier than hydrogen, but if you allow it to evaporate, the cup to evaporate, what will happen is the lighter isotopes, the hydrogen elements will come off, will evaporate first, because it takes energy to evaporate, latent energy, and what will happen is as that the water evaporates down, you'll have more deuterium than you will hydrogen. So you have what's called fractionation shift in isotopic values.

So your hydrogen becomes -- your water becomes very enriched in deuterium. And this is one of the ways they actually produced deuterium is through the evaporation processes. And that's the same way carbon in biological systems, when we have some sort of interaction with the metabolism.

Environmental systems, biological systems are generally very lazy and always use the least energy possible. They will tend to take the carbon 12 isotopes preferentially to the carbon 13 isotopes. This is where we get the shifts, and different plants and different materials have different ratios of carbon 12 to

carbon 13.

So the precursors or synthetic testosterone tend to have a very different ratio to natural testosterone, because we are isotopically what we eat.

Our isotopes in our body reflect our dietary composition, whereas the chemical process involved in making synthetic testosterone means you have a very different, more depleted compound. And because of this, we can look -- we can use this depleted compound, relative to the endogenous reference compound, and then we can state whether this is come from dietary intake or from some external exogenous process.

Sorry for going on a bit.

Q. No. And what are the target isotopes in this case?

A. The target isotopes, I think I've just described, are Carbon 13 and Carbon 12. Well, Carbon 13; Carbon 12 isn't an isotope. It's an element.

Q. And, in essence, the GC/C-IRMS instrument is an instrument which had not been able to do precisely what with respect to the

carbon 12 or carbon 13 ratio you were describing?

A. Well, it's not quite atom counting, but what it does is it separates, on the atomic level, different elements. It's as simple as that. It takes a lump of something, separates it into its individual components and then separates out the elements and determines their mass.

We refer to mass/charge ratio. The charge in this instrument is one. So, sorry, I don't expect you to understand that. But, in essence, we can just talk about mass. We don't need to worry about the charge.

Q. All right. If you could, I'd like to turn your attention to what is marked GDC 1366, which has been --

A. It's one of my more artistic moments.

Q. And if you could, in again as simple terms as possible, describe what this is a diagram of and how it shows how the IsoPrime in this case, in this case, works.

A. Okay. Well, in essence, we can split the system up in two units. We have the

GC, which is this big -- this round up here, so I should probably put a box around that. Now, the GC is --

Q. Right here?

A. Yeah, that's right. You've ruined my lovely diagram.

MR. BRUNET: Mr. Suh, I think we didn't discuss the issue previously whether or not this would be entered as evidence, as an exhibit?

MR. SUH: Yes.

MR. BRUNET: And is that possible to have you -- have you managed to print out copies?

MR. SCOTT: I -- yeah -- I actually distributed a set.

MR. BRUNET: Thank you.

Should we refer to this exhibit as a single exhibit on those pages or --

MR. SUH: Just this 1366.1.

MR. BRUNET: I'm with you.

Q. (By Mr. Suh) Okay. So here's the box that you asked me to draw, Dr. Davis, right here. That first box, right?

A. That's correct. That's the GC

system. And I think at this point maybe you should highlight that the GC system is not simply used within the isotope mass spectrometry, but it's also used in a completely separate instrument called the GC/MS, which is used for identification of the compounds, rather than simply isotopic evaluation.

Q. Okay. So, let me try to summarize what you said.

A. Okay.

Q. In other words, there is -- there is an entirely separate GC/MS instrument used at LNDD.

A. Yes.

Q. And that instrument generates a chromatograph?

A. Yes.

Q. And what is the purpose of that chromatograph?

A. Well, a spectrograph might be a

better term. That's -- the purpose of that is to identify what compounds are in the urine. We talk about peaks. Let's just make this clear.

Each one of those peaks is a compound, that's some "stuff" which is in the

urine. That's a particular compound, which we're actually looking for.

Q. So prior to even injecting this sequence, there will have been another GC/MS instrument that has been run and a spectrograph or a chromatograph generated?

A. That's correct. Or they can be run simultaneously, but you need two instruments. But anyway, that's another matter.

Q. Okay. But at LNDD, it was two separate instruments.

A. It was 20 -- well, ten meters apart, five meters apart. That's not exactly right.

Q. And what in this -- what occurs in this -- can you just walk the Panel through what occurs --

A. Yeah, sure.

Q. -- in this first piece.

A. What we've got is -- first of all, you take the sample. It's been -- it's been some wet chemistry on it to basically take the urine, clean it up, get rid of some of the gunk which you are not interested in, and then you inject it into the GC.

Now, this red thing here is what we

describe as an injection port. It's held at quite high temperatures. There's a very good reason for that, because, at this point, the sample is still liquid. And as the term "gas chromatography" might suggest, it's clear that we can only do this analysis while it's actually in the gas phase. So the injection port has to be held at a high temperature to vapor, over-laterize the compound, turn it into a gas.

Now, this is where we have a gas liner, a glass tube, sits in here, which, when the sample is injected, so that basically stops it from being flushed away and stops it from being lost and allows it to flow through. The carry gas of helium comes along and flushes the vaporized sample down into what we call the gas -- a GC column.

Now, this essentially is a long, very thin piece of glass tubing which is coated on the inside with various compounds which then separate out the compounds of interest from the sample, allows you to basically produce the peaks in many ways. It produces the separation which allows you to look at the different compounds within the urine sample.

So we have injection, separation, and then the samples come out the tube, one after the other, depending on the retention -- what we call the retention time. This is something which we've obviously discussed that -- just discussed over this week.

Q. So in other words, Dr. Davis, when they come out of the GC, the various compounds are coming out at different times depending upon their isotopic concentration?

A. Not their isotopic concen- -- concen- -- composition, no. I'll give you a proper lesson later, Maurice.

Q. Well, they come out at different times.

A. They come out at different times depending on their chemical composition. This -- there's a chemical separation, chromatography separation.

Q. And then when they -- when they come out, where do they go?

A. Well, they kind of go in two directions. Primarily what happens is, because we put a lot of wet stuff in here, we have a solvent -- it's various different solvents.

That comes through very quickly, well before the sample. So we don't want to pass them off into the mass spectrometer, because it causes damage to the mass spectrometer, so what we do is we take them off, up to this thing here, which is called an FID, or flame ionization detector. The name doesn't really matter.

Basically, what it does, it just burns off the solvent, in this case, and what we'll see from some of the chromatograms later from LNDD was a nice flat line; and suddenly, it jumps up and the baseline appears. That's when this valve here switches, so the flow of sample switches from -- going to the FID back to going to the mass spectrometer.

So we burned off a solvent, and now we're going to start with looking at the peaks. So the peaks are now starting to come through. This is simply a timing issue. When you are setting this up, you simply run the solvents, see when it comes out and change the time in the setup software of the mass spectrometer.

Q. And what's this furnace all about?

A. I was just getting to that. When this valve closes -- that's on green at the

moment -- the flow is diverted through into a combustion furnace. Now, this is -- different manufacturers run this at different temperatures. In the case of the IsoPrime, it's run at 850 degrees C.

And inside the furnace, we have some little, little copper oxide pellets over which the sample flows. As it passes over those pellets, oxygen is donated from the carbon pellets to the sample, to form combustion. In the oxygen you have to have combustion. So we -- what we do is, we combust it from a steroid, 5 pdiol, something like that, and we convert it from that 5 pdiol into carbon dioxide, C02 which has a mass of 44, a mass of 45, and a mass of 46. And I will come on to that a little bit later; but in essence, you have to convert everything through to CO2.

So any structure, any chemical structure in there that could be used for identification, is now completely lost. All you're left with is normal CO2 gas, same stuff you talk about in global greenhouse warming effects.

Q. All right. And then what happens

after it leaves the furnace?

A. Well, after it leaves the furnace, one of the problems, where you are -- you are combusting stuff, is any hydrogen in there, you're donating oxygen, you're going to pour water, H2O. So we need to get rid of that water so, secondly, we have a cold trap.

Now, the more up-to-date systems now use a membrane system for removing the water, but I think LNDD still used a liquid nitrogen trap. I'm not saying there's any benefit from one or the other; they both work absolutely fine. But after the -- after the water has been removed, then the sample passes off along and down into my schematic of an isotope ratio mass spectrometer.

Q. Okay. So what -- what, at the end of this, are these three bars supposed to represent?

A. Those three bars are detectors. The actual mass spectrometry itself is split into three elements. We have an ionization source -- it's the blue thing here -- we have a magnet, which is often referred to as the analyzer; and then we have the detectors, or these are

referred to as Faraday collectors.

And what happens is in the source, we have a filament, not unlike a light bulb element, an electrical current passes through it, not unlike a light bulb, and electrons are given off, not unlike a light bulb. And these electrons, then, pass through the gas of analyte, the analyte gas, the gas of interest, and it knocks off one or more electrons from that compound.

When you knock off -- an electron off, the nice electrical balance that we had before, which was all neutral, has now changed. So, we have a charged particle. And once you have a particle in charge, because it's not all balanced, you can do things with it. And what we want to do is we want to move it. And from that movement, we can then determine what we're looking at.

So, within the source, we ionize the gas, the CO2. We charge it. We then use electrical plates to accelerate it, to speed it up and fire it, like a gun, down a flank tube, and then it enters into a magnetic field. Now, any charged particle, when it enters into the

magnetic field, starts to rotate in a circle, and the degree to which it rotates in the circle is dependent on its mass and its charge. As I think I have already said, the charge -- the mass and the charge is essentially one, but there -- there's some variations, but let's not go into too much detail.

So, every -- every compound, the difference mass will rotate in a different radius, and what we do as mass spectrometry developers, we calculate what that radius is going to be, and then we stick a little bucket -- we call them buckets; that's essentially what they are -- at each point where we expect to see each one of the different isotopes.

And then what we do is, we simply measure the electrical charge, the electrical current, that is created by the ions hitting the back of the bucket. And what we see on the chromatograms, where we see on the Y-axis, where we see nanograms, that's what we're talking about. We're talking about the electrical charge which is created when the ions hit the back of that bucket. That is what -- that's

what we're measuring.

Q. So let me show you -- we'll do this in sequence. I'd like to show you what is USADA 336.

MR. WEISS: This is Exhibit 25.

Q. This is Exhibit 25, and this is just for illustration purposes only.

A. Yeah, this has been created on a mass spectrometry detector, not on an isotope ratio machine.

Q. Now, this, again, is a chromatogram which is produced first for the purposes of identifying the compound?

A. Correct.

Q. And that's the subject of Dr. Meier-Augenstein's discussion about the relative retention time between the compounds and the next chromatogram, right?

A. Correct.

Q. Okay. So that's the first step. And then this second chromatogram -- just again, this is just by way of illustration. This is USADA 337. This is the matching IRMS chromatogram.

A. Well, I wouldn't call it matching.

Q. Well, the -- sorry, the --

A. The rerun of the sample.

Q. -- the rerun of the sample. Right.

And, again, just by way of reference, this chromatogram is generated as a result of this piece, this part right here --

A. Correct.

Q. -- right? Of the substance coming out on the other end?

A. Simply speaking, yes.

Q. We're trying to be as simple as possible.

A. I'll do my best.

Q. All right. So -- and then you've seen, again, by way of illustration, this form, this page. Again, this is USADA 338, and this is the results page. Is that right?

A. That's correct, yes.

Q. And so it goes in that order, right?

A. Well, the results page and the chromatogram are essentially created at the same time, but yes.

Q. And just to go back to 336, the first phase, the GC phase, how do you know that this is the GC phase?

A. I'm sorry. How do I know it's the GC/MS?

Q. The GC/MS phase.

A. Oh, because I recognize the different printout. And if you look up there, it will say something like MS GC, I guess. It's a different type of printout.

Q. Sure. But even if you didn't have that up there, how would you be able to identify it?

A. Well, the different scales on this side as well.

Q. And would it also be because it actually identifies the compounds?

A. That -- well, the reason why it identifies the compounds is because someone has actually typed in what they are. It's a little bit more complex than that, but, yeah, this will give you a mass spectra data. This isn't a full mass spectra. It might actually be a spectrogram, but it's not -- if you notice there -- if you look at the top there, it says, TLC. That refers to total line count. So that's basically -- it's a combination of all the different ions. To actually identify the

peak, you'd have -- actually have to zoom in to an individual peak, and actually look at the different masses within that peak, which is what the software will allow you to do.

From this -- from this alone, you can't identify those peaks.

Q. Okay. And then this one, going back to the one which is associated with it, how can you tell that this is the GC IRMS?

A. Because I've looked at that screen shot many a time when I've been stuck-on site trying to get a machine working. I recognize this because of this window. I also recognize it because of the values on the Y-axis. I also recognize it because of the square top, reference gas peak.

I'm referring back to what I mentioned before: This flat line here, this is where all the sample was sent off to the flame ionization detector. So any peak that came out in that point there will not be -- will not be recorded and will not be seen and will be burned off. So if we had an internal standard that came out in this portion, we would not see it.

Q. How about this question for you:

Why is it that on these peaks, you have these numbers, these numbers here, and the numbers don't seem to correspond to the actual height of the peak?

A. Well, we're not looking at -- we're not looking at peak heights. We're looking at peak -- at ratios. These are ratios. This is -- what we have here, and I'll try to demonstrate a little later -- we're only looking at one -- to derive these numbers, you have to have both your mass 44 and your mass 45 things. Now, these numbers have been used a lot.

Let me just describe, you've got carbon and you've got oxygen. If you add them up, CO_2, that comes to mass 44 for your carbon 12, mass 45 for your carbon 13, and you have mass 46, which is essentially oxygen 18, but we don't need to worry about that.

Again, it's a bit of a simplification, but here we only have the 44, so there's another trace running along, going up and down, up and down, along parallel with all these little peaks, which is your mass 45. And then what happens is we pull out the 44 and 45, and the 44 on a ratio above this; and from calculations of those ratios, we then come up with these values or these delta per mil values.

Q. Okay. I'd like to show you what is GDC 1350. Have you seen this before?

A. I have seen it before, yes.

Q. And just very briefly, this is a chart of the results right here of the A and B Samples from Stage 17?

A. I believe so, yeah.

Q. And the column of the results from the blanks --

A. Yes.

Q. -- for A and B?

A. Yes.

Q. And then could you quickly describe what these different columns are.

A. Certainly. The first -- probably easier to start off with the manual -- I'm sorry -- with the zero. When you actually produce a ratio, you're producing numbers which you need to convert into these delta per mil units. I shan't bore you with the equations.

But, in essence, when the chromatogram first comes out, this zero subtraction has no correction factors. In

essence, all you do is you start with the peak, you end at the peak, and producing an isotope number from that. There may or there may not be some effect from changes in the backgrounds, which we've all been discussing over the weeks -- over this week, so those numbers may very well be invalid in many cases.

So what happens is, from this type of integration, the software then has to move on to another form of integration where it applies a correction for changes in the background or contribution to those numbers, which are not from the sample; they're from something else. They're from a leak or a bleed in the column; they're from a whole range of different purposes -- sources.

So therefore, what happens then, the laboratory applies a background correction routine, and this background correction routine is an automated routine, and it basically attempts to remove any contribution from stuff which is not from that particular compound.

Now, occasionally, and as seems to occur in this case, this routine is not up to the job; so therefore you have to use something

else. Now, what happened in this case -- something I don't agree with -- the technicians went in and manually corrected it and started to change the ends, the start, the end of the peak, background, and started making human decisions as to what the background was and how the background conditions were, and starts to remove that, without much consideration -- well, not without much consideration, but without any real process.

Q. All right. And can -- were you present during the reprocessing of the electronic data files?

A. I was, yes.

Q. And can you describe your observations when you were there about what occurred when the reprocessing took place?

A. Yeah. I mean, essentially what happened was the -- initially, we -- do you want me to subtract the data files and put them on the computer and everything, or just on the processing side?

Q. Yeah.

A. Yeah, that was a question, Counsel?

Q. Yes.

A. Okay. Well, do you want to start from the beginning?

Q. Yes.

A. Yeah. Essentially, when we arrived, the data files -- Dr. Botré kindly brought them through, and we placed them onto the CD drive of the computer in question. The laboratory staff were unable to copy the files across because I don't think they'd ever done it before. So I helped them do that, and Janine Jumeau, one of the USADA witnesses, helped them do that. When they were placed on the system again, they were unaware that if the file attributes were switched up -- switched to -- redundantly, they couldn't load it -- so I had to demonstrate that to them, and then to understand, we were then able to read the files.

Once we got to that stage, then we started loading up the files -- not myself -- the laboratory technicians loaded the files and started the process of reprocessing the samples.

During this process, they used a series of varying techniques between different operators, and within different operators, as an intro -- inter- variation. And in essence, what

they were doing was, they were moving the peak starts, the peak ends, removing data points from the background, adding new data points to the background, reprocessing -- I have to set this stage. Right through this stage, you could see the isotope numbers. There was no need for them to see the isotope numbers. I noticed in the SOP for them to initially load the sample, activate the software so they could see the start and stopping of the peaks and then start to do the processing.

Now, I don't see if they're -- if they're doing this independently, why they have to see the isotope numbers. They should just be able to pick the points which they believe they -- are correct, but that's more to an aside.

So they reprocessed the numbers and, much to my surprise, came out with very different numbers to the original sample. And the reason for initially doing this process was on Dr. Botré's request to ensure that those files that we were looking at were actually the original data files.

Now, the claim by the staff was that because they were unable to save those different

points during this reprocessing, they were unable to reproduce numbers. Now that, in fact, isn't true, because, in the software, there is a safe parameter file, so you can move all your background points, add the points, remove them, drag them, drop them, change peak start, peak end, color it blue, color it purple, do whatever you want, and at the end of this, you simply save the parameters.

This will store all the information of every single manipulation which they've done. And then when you reprocess it, you will get exactly the same number, exactly to the decimal point. I -- I can demonstrate this later.

Q. Well, we will demonstrate that in a little bit. But during this process, did you have the -- hear comments from the LNDD lar- -- lab technicians about the fact of manual reprocessing with respect to the OS/2?

A. Yes, it's clearly something you do on essentially virtually every sample. And I -- there was a great deal of relief when I showed them how to convert samples through to MassLynx, which doesn't require any reprocessing. Dr. Cynthia (sic) Buisson was actually really quite

pleased, and she came up and said, Oh, that's fantastic. And the implication was, is we have to do quite a lot of work with the OS/2 system to produce any valid numbers.

Q. After having reviewed -- oh, excuse me, one more thing.

Secondly, were you present or part of what we have been calling the retesting process? The retesting process is the process by which USADA had asked LNDD to test the B Sample from other stages of the 2006 Tour that had previously tested not adverse with -- by the T/E method?

A. That's correct.

Q. And have you seen this chart before?

It is GDC 1363.

A. It doesn't immediately spring to

mind, but I'm sure I have reviewed it.

Q. And did you attend the retesting process?

A. I did, yes.

Q. And how much of it did you attend?

A. Pretty much all of it. Not pretty much -- all of it. All of it.

Q. Well, was there a time when the

retesting process continued on past the times that you --

A. Oh, absolutely. See, these were obviously all automated runs, so we -- there were two processes occurring simultaneously. There was a chemistry phase, which actually takes a lot longer than the actual analysis itself. And then there was an automated analytical phase itself.

So within the laboratory, there were two separate rooms: one where the wet chemistry took place, and one where the actual mass spectrometry took place. And we couldn't be in both rooms at the same time, so we did have to leave one room intermittently and went backwards and forwards. And certain of -- some of the runs went on quite late into the early hours of the morning. We couldn't really be expected to really stay there, but it was over a week we were there. I mean, we couldn't simply watch every single process that was happening at every single time.

Q. And Dr. Davis, did you leave the LNDD prior to the time that the entire retesting process finished?

A. Yes, because they had to e-mail some of the results to us at a later date, yes.

Q. Okay. Now, after having looked at all of the data, and the lab results of this case, have you come to any conclusions about whether or not the test results that you have seen are reliable or accurate?

A. I think that they're totally unreliable.

Q. And do you have more than one reason for the lack of reliability of these test results?

A. I have lots of reasons, yes.

Q. Well, let's turn to the first subject which is linearity.

Can you explain to the Panel what linearity is and why it is important for -- why it is important when you operate a GC/C-IRMS instrument.

A. One of the problems with a GC/C-IRMS is the systems tend to be somewhat imperfect. No system is perfect. And one of the faults with the IRMS system is it's very difficult to make sure that when you measure the small amounts of something, you get the same as if you

measure a -- very large amounts of something.

So what we have to do as developers and users is ensure that when we are using the instruments, we ensure that that instrument is "fit for purpose" -- vis-a-vis the phrase that Christiane Ayotte used -- and this requires regular testing to ensure that when you analyze a small amount of something, you get the same number, isotope numbers, when you analyze a big -- a large amount of something, and this is what we refer to as linearity test.

Now, there are a couple of different ways of doing it. We have reference gas box linearity, and we have sample linearity.

Could I just go back to the graphic of the actual GC/C-IRMS, please?

Q. Yes.

A. Very briefly.

Just -- okay. What you're seeing down at the bottom here is a CO2 reference gas box, a bottle.

Now, essentially, all this is a supply of gas, and you have a valve; and when you open that valve, CO2 of known values comes up and goes off into the mass spectrometer and gives you a B. Now, these square top peaks that we've been seeing throughout the testimony this week, are exactly that. That's what we're seeing.

Q. When you say these --

A. These three -- three peaks here and these three peaks here. This is from the reference gas box. It allows you to calibrate the instrument and do a number of tests. And one of those tests is the reference gas test that we're talking about. It's a very simple test. It takes six or seven minutes to do. And, in essence, all that happens is you change the pressure on the CO2, and you start from a very low pressure, and you -- every time you get a peak coming out, you change the pressure either up or down, and you measure the isotopic value of all the different peaks and different heights; and because it's coming from the same tank, all those numbers should be the same.

Now, no mass spectrometry in the world is perfect. They all have some linearity issues, so that's why manufacturers specify an amount of change which is acceptable over a given range, and that's what needs to be tested.

Q. Okay. And again, the range that is

important would be the range in which the instrument is actually used.

A. To a degree, yes, certainly. If you can -- you absolutely have to have linearity of the range in which you are going to see your peaks. Even if it's outside the peak, I would still argue that the machine is designed to have a linearity of X; and if it doesn't, it's not working properly.

So I would also argue, even if linearity is outside the operating range of the user, it should still be linear of the full range as designated by the manufacturer. If it's not, there's something wrong.

Q. Let me turn your attention to what is Page G 522.215.

And do you recognize what this page is?

A. It looks like a description as to a linearity test. I can't read it from here.

Q. Does it -- if I zoom into this heading --

MR. CAMPBELL: Is that an exhibit, Mr. Suh?

MR. SUH: It is.

MR. WEISS: GDC 522. It should be -- say -- it's in its own binder.

Q. Oh, sorry. The IsoPrime User

Manual, which is --

A. I can actually read it from here, but ...

MR. BRUNET: Would you find us the numbering of the pages, please.

MR. SUH: It's 215, Page 31 of the -- of the actual IsoPrime User Manual, and I just want to turn your attention to this portion.

MR. BRUNET: The user manual has various sections and every section -- every section has its own numbering.

MR. WEISS: The chapter name is "Checking The System," about three-quarters of it are -- consecutively the pages are the -- after the dot, so it's GDC 522 and then .215. Those are not --

MR. BRUNET: Okay.

MR. SUH: Let me get you the --

MR. CAMPBELL: If you wouldn't mind approaching it, and helping us get this.

MR. SUH: Sure. Absolutely.

THE WITNESS: Could I possibly get some water?

MR. CAMPBELL: Mr. Suh.

MR. BARNETT: If we're going to spend a lot of time on this document, can I suggest we come up with some numbering system that will allow us to follow along as well?

MR. SUH: This is it. Two questions.

MR. YOUNG: Where are we? Maurice, maybe you can help?

MR. WEISS: I can help.

(Pause in proceedings for documents)

Q. (By Mr. Suh) Have you seen the IsoPrime user manual before?

A. I wrote part of it.

Q. Okay. And can you explain what this page on linearity deals with?

A. It's basically telling the user how to do the test, how to change the -- how to change the yield, I think, is the phrase. But basically -- it's, basically change the peak heights from the reference gas box, so that's, in essence, how to -- how to turn the

pressure -- the knob on the pressure gauge, in essence.

Q. And when you were actually at LNDD, did you have a conversation with Dr. de Ceaurriz and Mrs. Buisson?

A. Dr. Buisson, yes. I have been continued -- the IsoPrime is not a particularly linear instrument. It has problems. And from the first moment I entered into the laboratory, I requested to see linearities and was told I could not see them. I then had further discussions with Mr. Dunn, and Mr. Aguilera -- Dr. Aguilera, who was there -- requested that we could see linearities, one on each day of the analysis. I was told yes.

And then the two gentlemen I just mentioned consulted the laboratory staff who, much to my utter astonishment, said they only did one linearity per month, and we have evidence that they don't even do that.

And that linearity had, again, much to my surprise, had only been done the day prior to us arriving at the laboratory. And I requested -- I spoke to Dr. Aguilera, and I said, "Do you feel it's unreasonable for me to

request the linearity runs?" And he went quiet and eventually said, "No comment."

As far as Dr. Buisson went, I was talking to her later on in that day, and she stated quite clearly that -- that at the extreme ranges -- I presume she's talking down towards the lower or the upper ranges -- she said they did have problems with linearity on the IsoPrime.

And as we saw later when getting some of the -- eventually getting some of the linearity results, we noted that had they did not change the reference gas process down to the lower end and the upper extremes of the range required. They truncated it somewhat.

Q. Let me show you what is marked LNDD 547. Do you recognize what LNDD 547 is?

A. Is this their SOP?

Q. Yes.

A. Yeah.

MR. SUH: And perhaps, Mr. Chair, since it is in French, and we are no longer with the benefit of our French/English interpreter, you might be able to interpret the highlighted section?

MR. BRUNET: This test is to be run at least once per month. It consists to verify, and that's a technical translation, so I'll try my best -- it consists to verify the -- the scope of the linearity field of the instrument. It's the best I can do.

MR. SUH: But the first sentence is, it should be done at least once per month.

MR. BRUNET: That's what it says.

Q. All right. I'd like to show you some documents, Dr. Davis, beginning with LNDD 313. Have you seen this before?

A. I have, yes.

Q. And what is it?

A. This is a printout from the JA 10 series IsoPrime, the one used to analyze the

Stage 17 samples.

Q. And, Dr. Davis, just for -- for ease of sake, why don't we say that the Stage 17 IsoPrime is -- we'll call it the IsoPrime 1.

A. Okay.

Q. And the --

A. I see it is labeled, yes.

Q. And the other IsoPrime as the IsoPrime 2?

A. Okay. This is a printout of a linearity -- a linearity test performed on IsoPrime 1.

MR. JACOBS: And the page?

MR. SUH: It's LNDD 313.

Q. And then turning to LNDD 315 --

MR. WEISS: The exhibit number, for clarification, is Exhibit 26.

MR. BRUNET: I'm sorry?

MR. WEISS: Exhibit 26.

MR. BRUNET: Oh.

Q. And I'm sorry.

Before I go off of this, when was this linearity run performed?

A. The acquisition date was the 26-06-05.

Q. So --

A. I'm sorry. I apologize.

Q. -- June 26th of 2006?

A. Yes.

MR. CAMPBELL: Can we get that reference page? The Bates number again?

MR. SUH: Yes. LNDD 313.

Q. Okay. And then, Dr. Davis --

MR. BRUNET: I'm sorry, Mr. Suh,

going back to what I was translating before. What was that reference? Was it once a month?

MR. SUH: It was once a month or at least once a month. It was LNDD 547.

MR. WEISS: Which is Exhibit 112. 112.

Q. (By Mr. Suh) And then just to show you LNDD 313 -- 315, do you recognize what 315 is?

A. Yes. It's another linearity run, yes.

Q. Linearity runs are done in triplicate; is that right?

A. The stability is done in triplicate. I believe the linearity runs are also done in triplicate. I'm not sure the SOP refers -- actually states that. I could be -- I could be incorrect, though.

Q. But this is -- this is the second linearity run on the same --

A. Yeah, I think it's perfectly reasonable, yeah.

MR. CAMPBELL: We're still trying to locate one, please, Mr. Suh.

MR. SUH: I'll hold.

MR. CAMPBELL: Do you have any times?

MR. SUH: I don't have times.

MR. CAMPBELL: Okay.

MR. WEISS: Here's the single page.

MR. CAMPBELL: We're trying to find it in your books.

MR. WEISS: It's 547 in Exhibit 112.

MR. SUH: Just -- just so the Panel knows, I'm just showing each one of the pages for the linearity runs for each. These are -- the 315 -- 313, 315 and 317 are just the linearity runs, three done on June 26th of 2006.

MR. BARNETT: And, Mr. Campbell, to clear up the mystery, the binder that says it has Exhibit 110, exhibits were brought with us and added to that, so it actually should have the rest behind that.

MR. CAMPBELL: Okay. Thank you.

MR. BARNETT: Sorry for the confusion.

Q. (By Mr. Suh) Dr. Davis, looking up at LNDD 317, was this linearity done on June 26th, 2006?

A. That's what the printout says.

Q. Okay. And then now turning to LNDD 320, when was this linearity run done?

A. The 31st of the 7th, '06.

Q. It would be July 31, '06?

A. Yeah. Sorry.

Q. And when was this one done?

A. The same day as the previous sample.

Q. And when was this one done?

A. The same day as the previous sample.

Q. And turning to the last set -- when was this one done?

A. The 25th of the 9th, '06.

Q. And how about LNDD 329?

MR. BRUNET: Which one's that one?

MR. SUH: LND- -- this was LNDD 327, which is the September 25 linearity run.

MR. WEISS: And now we're on Exhibit 26.

Q. Turning to LNDD 329, when was that linearity run done?

A. The 25th of the 9th, '06.

Q. And the next one, Page LNDD 331? Again, was the third one done at the same time?

A. Same as the previous one, yes.

Q. Okay. So based upon the records and

the documents you've seen, did LNDD perform linearity tests pursuant to its own SOP?

A. Nope. They -- even with the one or two, they kept missing out the occasional -- the occasional month.

Q. Based upon what you've seen in the records and your visual -- and your inspection of LNDD and discussions with LNDD personnel, do you have an opinion as to whether or not the IsoPrime 1 instrument was linear?

A. I think it drifted in and out of linearity, and I think there was also a degree of uncertainty as to how unlinear it was, because they did not do the tests properly over the full range.

And let me just -- to instruct you, let me just emphasize how important linearity is. If you have a peak -- if your system is nonlinear, the isotope number will change dependent solely on the peak heights. If you have a big peak and a small peak, there'll be a shift in that isotopic number reported, irrespective of the composition of that compound.

And in the context of GC/C-IRMS in

doping control, we have quite a big range in peak heights, so the system has to be linear.

This is a very demanding isotope application. Your system has to be working properly.

Q. And if it is not, what happens to the final values?

A. They're wrong.

Q. All right. Let me ask you -- turning to another subject now -- as for -- these are all a number of different subjects. Did you, when you were at LNDD, have an opportunity to take a look at the IsoPrime 2?

A. I did, yes.

Q. It is GDC 734.2?

A. Yes.

Q. Is that a picture of it?

A. That's a picture of the IsoPrime 2 at LNDD, yes.

Q. And how did you get a picture of it?

A. I used my mobile phone.

Q. And do you recognize this as an IsoPrime instrument that you are familiar with?

A. Yes.

Q. And can you tell the Panel what these things are? Do you know what these are?

A. It's either a Mickey Mouse head or they've left the magnet lifting rings on.

Q. What are -- what are the magnet lifting rings?

A. The magnet is a very, very precisely

engineered piece of metal. It's also very heavy. So, therefore, to pick it off the ground and put it on the machine, you have to use a very thick steel bar which is passed through those two removable rings, and two people can then lift the magnets up and place it on top of the mass spectrometer in a position for operation.

Q. You mean, there's a magnet in this instrument?

A. Yes, there's a magnet. This is the magnet here. Thus being, this is what we refer to as the analyzer. It's called the analyzer because it's probably the most important part of the mass spectrometer. You get that wrong, your mass spectrometer doesn't work. Simple as that.

Q. Okay. Let me show you your diagram again. Where does that magnet sit?

A. That's this portion here -- this blue outline.

Q. That's what spins your --

A. That's what causes the ions to rotate and to cause the separation of the carbon 13, the carbon 12, and every other ion that should pass through it.

Q. Now, is the magnet function an important function for this process?

A. As I just stated, it is the most

crucial function. You can have faults with your source; you can have faults with your detectors; you can get around those, but if your magnet is not right, you're dead in the water.

Q. Okay. So going back to this picture, did it shock you to see that there were these rings?

A. I was astounded.

Q. What does it matter that there are rings on the instrument?

A. Well, as I think I mentioned, the magnets produced to, within my review of the drawings, .01 of a millimeter precision, and they're produced to that kind of -- they're manufactured to that kind of a precision because they're produced to a very precise magnetic field, and if that magnetic field is not

correct, the ions will go all over the place. And at the end of the day, the ions are the important stuff; that's what you are trying to count.

Now, I can't -- I can't, hand on my heart, say that has caused a huge, major problem. But I don't know and it potentially could be a catastrophic problem, and nobody knows. Those big lumps of metal will have an effect on the magnetic field. Nobody can deny that. Nobody can deny that.

Q. And are they supposed to remain on the instrument after it's delivered?

A. Absolutely not.

Q. They're just to move the instrument.

A. They're simply to pick up that magnet.

Q. All right. Again, in no particular relation to the magnet issue, I'd like to show you the USADA brief, Page 62.

Have you had a chance to read the highlighted portion before?

A. This is where they refer to the server control, the lights showing that they haven't got a leak. Yes.

Q. This deals with the issue, in their brief, they're dealing with an issue of whether or not the IsoPrime was being run at the proper pressure, which we'll get to in a moment.

A. Okay.

Q. And in response to this concern, do you see where it says, "The instrument has a built-in operating light which establishes that the instrument is operating within the correct pressure range. When the instrument is operating properly, a green light is displayed on the instrument. If the operating pressure becomes too high, the light turns yellow as a warning followed by red and instrument shutdown."

Exhibit 32 is three, color photographs of the LNDD IsoPrime instrument operating at a pressure of 5E-6 millibars with the green light display.

A. Yes.

Q. Okay. And then turning to those pictures, do you see -- have you seen this picture before?

A. Yes, I have.

Q. Now, you're familiar with this

instrument.

A. I am.

Q. Now, what do you think about the argument that this green light, right here, is a warning light, which -- I'm quoting the brief -- that if the operating procedure gets too high, the light turns yellow, as a warning, followed by red, and instrument shutdown.

What do you think of that?

A. It shows a complete lack of understanding of that instrument. That -- first of all, that light does not change color. It's either green or off. That light -- well, first of all, that unit is a control unit, a control unit which switches on and switches off the pumps which are used to create a vacuum. That green light refers to the speed at which the pumps are working, and it comes on when the pumps are operating at the correct speed.

Now, if there's a huge leak, the pumps will not be able to maintain the speed, and the green light will go out. But that will be a leak so large you can hear it. And we're talking about leaks of -- of atoms here. We're not talking about of a gas flow; we're talking

about very minor leaks. That has nothing to do with pressure.

Q. And does this light turn -- change color?

A. As I have just said, it does not. It either goes on or it goes off.

MR. BRUNET: I hate to interrupt, but I'm out of paper. I'm talking about writing paper.

Brian, can you bring one up.

Q. All right. Let's turn to another issue. I'd like to turn to Page 9 of a discovery response from LNDD.

Do we have this marked as an exhibit in discovery responses?

For the record, they're just discovery responses. We don't believe they're marked as an exhibit. The discovery response says, "LNDD has no manual specifically for the IsoPrime."

A. I did ask for -- to see the manual, and Mr. Dunn said I was not allowed to whilst I was there. So I couldn't say whether it existed or not for the simple reason I was not allowed to see it. I did not see any signs of it whilst

I was there.

Q. Now, having been in charge of installing and working with these instruments, do you think it's important to have the actual operating manual for it?

A. It's essential. You wouldn't buy a car without a manual. You certainly wouldn't buy a mass spectrometer without one.

Q. But why would you need it?

A. Because mass spectrometers are not washing machines. They're very complex pieces of -- of a manufacturing kit, and there's no way that you can keep that knowledge in your mind. Each one of these mass spectrometers is many, many decades of work that's gone into developing them, and that knowledge has to be passed on. And the best way to do that is in a written -- a written or electronic document.

And most individuals who buy these mass spectrometers are people who specialize in applications. They're not mass spectrometrists by their nature; they're biologists, they're doping control experts, they're interested in global greenhouse warming. They're not -- they don't spend their whole lives playing with mass

spectrometers.

They want a nice, simple instrument they can go in and use, and that requires instructions and procedures and laid-down processes which they have to follow to ensure the machine is working correctly, properly, it's maintained in a manner which is necessary for good analytical results.

Q. Well, does the manual actually contain useful information about how to operate the instrument?

A. Of course. Of course it does.

Q. Let's talk about something called Penning pressure. Do you know what Penning pressure is?

A. Well, a Penning gauge measures pressure. It gives you a read-back in millibars as to the pressure within the mass spectrometer itself.

Q. And what is the pressure? What does that mean?

A. Well, when you're analyzing individual atoms, or individual molecules within a mass spectrometer, you can't have anything else there. It has to be done in a vacuum. If you are putting CO2, it doesn't matter how good your preparation system is, or how good your chromatography is, or how good your separation is; if you put CO2 in the mass spectrometer, and the CO2 from somewhere else is already in there, it's going to -- it's going to contaminate it; it's going to affect the way the mass spectrometer works; it's going to interfere and hit each other; it's going to break molecules up; it's going to cause a mess.

So the first thing you have to do when you are designing a mass spectrometer is make sure you have got rid of everything. So you have vacuum pumps. You have got the turbo pumps, which we saw earlier, controlled by that -- the green light, and they basically remove any atmosphere from within the housing into which you are putting your sample, and the more you remove, the better.

Now, the Penning gauge is a simple -- a simple piece of electronic equipment which tells you exactly how much of the stuff there is in there. So what it does is it gives you the measure of how much stuff in millibars that you are actually looking at, how much --

I'm sorry. I'll start again.

The Penning gauge gives you a measure of the amounts of other stuff which your sample is likely to encounter once you pass it back into the actual mass spectrometer itself, and, therefore, how much interference, or concern, you should have from that other stuff within the mass spectrometer.

Q. I'd like to show you what is marked GDC 522.204. It's a page from the manual.

MR. BARNETT: Can we -- again, if we're going to go to the manual, Mr. Suh, let's just ...

MR. WEISS: What page?

MR. SUH: Page 204.

MR. BRUNET: Which section in the manual?

MR. SCOTT: It's where the linearity was, so a few pages before. If you have that tab, I can get it for you.

Q. All right. Do you recognize the paragraphs right here? Can you read them from where you are?

A. I can, yes.

Q. And what are those paragraphs

advising the owner and operator of the IsoPrime instrument to do?

A. What they're saying is they should keep the pressures below a level of 5E minus 6 millibars.

Q. And turning your attention to USADA 176, do you recognize what USADA 176 is?

A. I do, yes.

Q. And what is USADA 176?

A. That is a screen shot of the OS/2 software, and the highlighted section -- excuse me. It shows the pressure as read back from the IsoPrime 1, on that date, or on that instant, I should say --

MR. BRUNET: I'm sorry. What was the page reference again?

MR. SUH: USADA 176.

MR. WEISS: That's Exhibit 24.

Q. And is this pressure within the applicable specification?

A. No.

MR. BRUNET: Mr. Suh, what was that pressure listed?

Q. Right at the top here. Sorry if we're moving too quickly. I'll slow down a

little bit.

MR. CAMPBELL: This was in the A Sample?

MR. SUH: This was in the A Sample.

MR. MC LAREN: Our copy is not very good. Could you just read out those numbers?

MR. SUH: 5.2E minus 6 millibars,

next to the word Penning.

MR. BRUNET: Question. I've a technical question. I'm looking at the previous page which is 19. At the bottom, it says: "The Penning system of the mass spectrometer is fully operational and that the Penning gauge reading does not exceed 1E minus 6 millibars."

A. Yeah, I can explain that. What they're talking about there is --

MR. BRUNET: And then -- I'm sorry.

A. I'm sorry.

MR. BRUNET: And I'm comparing this to what we've been referred to just moments ago. Paragraph 2 says, Monitor the pressure on the Pirani gauge.

Now, USADA 176 that we're looking at, this report, the Penning says 5.2. And then the Pirani is 1.4. Could you explain the

difference?

A. Certainly, yeah. Explain the difference between the Penning and the Pirani. The Penning gauge actually measures the pressure within the vacuum housing itself. Now, the way the pumps work, it's a two-stage system. We have what's known as a turbo molecular pump which sits immediately under the housing, and the pressure we're reading for the molecular pump is essentially the 5.2E minus 6. The turbo molecular pump is a gas engine. And it's spinning around very fast and firing anything which hits it down to the bottom, where pressure builds up, and we have a secondary bellows pump, a rotary pump, which then pumps away any stuff that accumulates in the bottom in the turbo pump.

And the pressure you are seeing on the head Pirani gauge is the lower pressure, or the backing pressure, the pressure on the rotary pump, which basically sucks everything away.

I think I need to get a little bit more technical. In essence, we have two types of gas flows. We have viscous flow and molecular flow. In this room, we have viscous

flow, where the movement of gas, one molecule of gas affects all the other molecules around it. So if you -- if you wave to someone, you can feel a draft of air coming towards you. As pressure drops, this other action -- this interaction stops and we get what's known as molecular flow.

If I went into a vacuum of 5E minus 6, and waved my hand, nothing would really happen, unless I actually luckily happened to hit one of the atoms, and that would then bounce off and fly somewhere else. So, what we're getting -- everything's flying in a straight line. So a simple bellow pump, where you're basically taking it and compressing it, no longer works. This is why you have to have a certain molecular pump, where you have basically a big hole in the bottom with the turbines spinning around, the turbines pointed up just like that, as the gas comes along and, by pure chance traveling the straight line, hits the turbine and bounces down to the bottom.

The bottom of that pump then builds up pressure and then to a point where it becomes viscous flow again, and then the bellows from

the rotary pump could then remove all that gas. So that's why you have the different pressures.

MR. BRUNET: Thank you.

A. Oh, and sorry. Just to get back to the other point. You refer on the previous page, on Page 19, to a pressure of 1E minus 6 mBar, which is actually a lot lower than the pressure we're seeing here 5.2. This refers to a setting-up phase of the system where you haven't -- let me just check. Sorry. So this refers to where you haven't got all the tubing and gas flows connected, so you don't have -- you don't have all the gases coming in. This is a setup process, and this is why it refers to a much lower -- a lower pressure. This is not an operating configuration. This is a setup procedure.

MR. BRUNET: Okay. So following that, then, the Penning pressure is higher than we see here.

THE WITNESS: Yes.

MR. BRUNET: Paragraph 2 here refers to the Pirani gauge, not the Penning gauge?

THE WITNESS: Yes, and that's the vacuum pressure for the rotary pump which is

much lower -- sorry -- much higher. Excuse me.

MR. BRUNET: Okay, now, and the Pirani gauge, on the sheet that we're looking at, reads 1.4; is that correct?

THE WITNESS: That's correct, yes.

MR. BRUNET: And the specifications on Page 20 here say, "Monitor the pressure on the Pirani gauge and wait until it falls to two."

THE WITNESS: 2E minus 2 mBar, yes.

MR. BRUNET: So is that correct or not correct?

THE WITNESS: That's -- that's -- well, that's the pressure of 1.2E minus 2 mBars -- actually, you've got lower than 1.2E minus 2 mBars that's the --

THE THE REPORTER: Wait. Sorry.

THE WITNESS: I apologize.

THE THE REPORTER: That's the

pressure of 1.2E minus --

THE WITNESS: The pressure that we're seeing on the printout there is, in fact, lower than the required pressure as laid out in the folder, so the vacuum pressure is correct.

MR. BRUNET: Okay. Thank you.

THE WITNESS: These were the specifications.

Q. (By Mr. Suh) Dr. Davis, what is the effect of running the IRMS instrument at the wrong pressure or outside of the regular pressure?

A. I have seen so many different effects, you can't predict it. One could certainly be nonlinearity, and if we look at the date when that screen shot was taken and when the instrument was most nonlinear, they do seem to coincide.

Now, my biggest concern is not even --

MR. BRUNET: Dr. Davis, sorry. Maybe there's something I missed. Can you just point me back to where perhaps it was operating at the wrong pressure?

A. That was back -- that was the shot there. Just go back. Just go back to the previous.

Q. The previous one?

A. Okay. So, here we have the Penning gauge pressure, and the pressure was 5.2E minus 6 mBar. And then we have the Pirani gauge at

the bottom, which is 1.4E minus 2 mBars at the specification --

MR. BRUNET: Just so I'm clear. The Penning pressure is a setup pressure, it's not -- is the number in the Penning pressure important while the test is being run?

THE WITNESS: Absolutely.

MR. BRUNET: I missed that.

THE WITNESS: This is a continually updated monitoring of the pressure within the mass spectrometer itself, so this measures the pressure where your sample is, and that's why it's a matter of concern.

MR. SUH: Okay. Did we get an answer to the question -- oh, yes, we did, didn't we? The last question?

THE THE REPORTER: Yes.

Q. (By Mr. Suh) What is the effect of running the instrument at the wrong pressure outside of the specs --

A. The long and the short of it is that the numbers become unreliable. But one thing I want to also point out is that, not only am I concerned by that pressure, but the fact that the pressure is changing between different screen shots without any reference to any fault findings. So just because that pressure is at 5.2, does not mean that the pressures, when the samples were run, at different times, were higher or lower.

And I think we also point back to some testimony by -- Cynthia Mongongu, actually, said that she'd seen it as high as 5.6E minus 6mBar as well. So it makes it obvious, that pressure should essentially be pretty static. If the system is working properly, you should not see that change. And but what we are seeing over the periods of the analysis, is a variable source pressure, which is -- which is not a good thing.

Q.   Dr. Davis, let's turn to a different problem: the problem dealing with automatic sequencing.

Can you explain to the Panel how the IRMS instrument was designed to be run; and by that, I mean, how the various quality controls and samples were meant to be run in sequence.

A.   Well, it varies in configuration. But with LNDD, the system which they -- they had, which they used, has a fully automated auto sampler. So in essence, the idea behind that is it removes human intervention and makes sure that every time you run a sample, it is done in exactly the same way and in the same order, and in the same process.

So you pair your samples into the wet chemistry; and you take them across the machine; you put them into the auto sampler, in sequence; you type in the methods of the procedures that you want performed on those samples; and then you hit go. And you go off and have a cup of tea and come back in five or six hours, and then the results should be waiting for you.

Q. Why does it matter that the sequence be done automatically?

A. Well, I think I just described that. It removes human error. It removes differences in injection procedures. Sometimes people can come in and inject the sample slowly, which affects the chromatogram, or inject it fast or they just partially inject it. If -- if it's -- if it's done by -- essentially by a robot, it will be far more reproducible. And if your injection procedure's far more reproducible,

your results will be far more reproducible.

Q. Why does that matter with respect to

the accuracy of your results?

A. Well, it can change the accuracy -- it can improve the accuracy of your results.

Q. In other words, if you run it automatically without human intervention.

A. Yeah. Yeah. I mean, you may still be able to get the same accuracy with manual injections, but you will certainly have a better chance of getting the precise numbers if you do it in an automated fashion.

Q. Okay. What I'd like to show you is on -- I'm wondering if maybe we could do this better automatically? I'd like to show you USADA 155.

MR. WEISS: Which is in Exhibit 24.

Q. Which is in Exhibit 24. So the Panel knows, USADA 155 is the batch data processing result, and while the Panel and opposing Counsel is pulling up Page 155, for this next discussion, we are going to use 157, 160, 163, 166, 169, 172, 177, 178, 179, 180, 181, and 183. And these are all the data -- data processing results for the batch data

processing for Sample A.

Now, it occurs to me what might be easier is while we do the questioning on Sample A, I have the same package -- now, everybody has these copies, obviously. I'm going to have copies made so that Panel and the parties don't have to flip through and find them. It will be duplicates, but that way you'll have them in front of you. Okay? I'll have samples made.

Okay. So turning our attention to --

MR. BRUNET: Let's take 15 minutes, and then we'll come back after that.

(Brief recess taken from 3:38 to 3:58 p.m.)

MR. BRUNET: Welcome back.

MR. SUH: Thank you, Mr. Chair.

I believe the Panel now has copies of what are the batch sequences for the A and the B runs. And again, these are documents you have in your folders, but it may be easier, since now you have them free, you can refer to them as we go through.

Q. (By Mr. Suh) Dr. Davis, we're going to take a look at the batch runs, and, first of

all, let me just -- I'll start with this first page right here.

MR. SUH: Well, I'm sorry. Todd, I think you were just going to put it up, right?

Q. (By Mr. Suh) USADA 155, which is the A batch run. You've looked at that before, right?

A. I have, yes.

Q. And you have looked at the corresponding pages -- you can leave that one up, Todd -- you've looked at the subsequent pages that we -- we've now handed out to everybody, right?

A. I have, yes.

Q. And just so that -- so that everyone is following along, the subsequent pages are the individual data processing results that we received for each sequence of the run; is that right?

A. That's correct, yes.

Q. All right. So why don't we take a look at -- Todd, if you can blow up this --

A. Sorry. Can we just clarify: The front page that we're seeing here is actually the results from the batch -- the automated

batch analysis. What -- what that means is that the operator's come along and has placed 14 sample bottles actually onto the machine, they programmed in the computer exactly what they wanted the computer to do, and then the computer has gone away and controlled the robot, and the mass spectrometer to run sequentially one after the other, 14 samples. And the results that we're going to see, subsequently, should be from that automated run procedure.

The only way that run will stop is

if someone comes along and manually presses a button to stop it. It can be stopped and restarted but, even so, this printout we see here will not be printed out unless that run is completed. If it's partially completed, only part of that run will be printed out, because this is hard code into the software and cannot be changed.

Q. Okay. Let's just make sure that everyone understands. This run, when you say the 14 steps, you mean the steps laid out from here all the way down to here where it says 14, right?

A. The 14 analyses, of varying

different types, yeah.

Q. And the pages that we've just handed out to everybody are the 14 pages that -- that should -- and pursuant to USADA's brief -- do in fact correspond to each of these steps, right?

A. Correct.

Q. Now, you have taken a look at the following 14 pages, right?

A. Yes.

Q. Now, when you looked at these 14 pages, did you come to a conclusion about what these following 14 pages were?

A. Not all the following 14 pages were printed out as part of this batch run.

Q. Okay.

A. Some of them were; some of them weren't.

Q. Right. The ones -- the ones that are printed out, can you describe which ones are not printed out, actually? That would be helpful.

A. Okay. Well, just to explain how it comes to that conclusion, if we look at USADA 157.1, you'll see in the -- where's my pointer? Excuse me. I got it here. All right.

You'll see in this very top block of text, at the beginning. You'll see a number of bits of information, date, run time used, et cetera, et cetera. You will see a variable called batch name. The batch name is the name under which any sample -- the batch under which any sample was run.

Now, the batch on the front page was 230706. Okay? So that's the very top -- the very top number there. Yet, on this one, we see the batch name is empty. So that means that this piece of paper, this result, was not processed -- was not printed out contemporaneously with the batch run.

Same is true of USADA 160.1; same is true with USADA 163.1; same is true with USADA 166.1; same is true with USADA 169.1; same is true with USADA 172.1. And then we get to USADA 177.1, and you'll note that the batch name has reappeared. Or has appeared, I should say.

Q. So USADA 1 -- 177.1 is the first time you see the batch name that actually appears on the batch summary, that first page, right?

A. That's correct.

Q. Okay. Now --

A. It's a batch result printed out.

Q. A batch result printed out.

A. Which is similar.

Q. That's USADA 155, right? Okay.

And then why don't you keep on going after 177 --

A. Okay. 178.1 is part of the batch. 17- --179.1 is part of the batch. 180.1 is part of the batch. 181.1, again, that's not part of the batch summary, batch result -- I'm correcting myself. And the final one, USADA 138- -- 183.1, returns back to the batch report again.

Q. Now, when you look at the values -- go back to 150- -- USADA 155.

Now, Todd, if you could blow up this -- yes.

Do you see that there are values in the -- in the batch summary?

A. Yes.

Q. And I know we don't have all of the values because, actually, the page looks like it got cut off, right?

A. Unfortunately, that's one of the

faults of OS/2. If the name is long, you tend to lose a lot of the information after the first line.

Q. Did you try to match up some of these --

A. I did, yes.

Q. -- results? And what did you find when you tried to match up what is on the batch summary, this first page, is to the subsequent pages?

A. The numbers, in general, are different.

Q. Okay. In other words, just so that it's clear, these pages are supposed to follow and support each one of these steps on this page, USADA 155, right?

A. Yup. But that's the note from the batch runs. It's not surprising the number is different.

Q. Right. Right. You -- it's more proof that you have stuff in here which is -- was supposed to be run in here, but it's not. It's from some other sequence, right?

A. Well, we don't know where it's from.
We just know it's not from the batch.

Q. All right. Why don't you find for me the pages in here which don't match the summary result which is set forth -- the ones you can read anyways -- which are right here.

A. Sorry. Find the page --

Q. Yeah.

A. -- or pages?

Q. Yeah.

A. Well, the mix cal IRMS series, there are three. Okay. MixCal003. I'm sorry, I'm making noise. Okay.

So if you're saying there is some comparison between the MixCalIRMS001-3, that's not surprising, because that is part of the batch.

The MixCal002, which is again part of the batch, quite surprisingly, actually has different numbers as well. The numbers don't fit there either.

Q. Sure. Let's pick -- let's pick one that you're saying where the numbers aren't -- can you give me the USADA page number?

A. USADA 179.1.

Q. Todd, can you put 17- -- USADA 179 and USADA 155 up on the screen at the same time so we can illustrate what Dr. Simon -- well, what Dr. Davis is trying to show?

Dr. Davis, perhaps you could use your pointer?

A. Well, we're looking at the numbers, minus 32.22 and minus 39.5, and those numbers should be reflected down here. And I can't see those numbers there at all, nor in the oxygens. They're different.

Q. Okay. So just so we're perfectly clear, I'm holding USADA 179.

A. Yes.

Q. And I'm holding 155. This is supposed to be the -- the batch summary.

A. That's correct.

Q. And this is supposed to be --

A. The result.

Q. -- the result of this.

A. Yes.

Q. And this is clearly not this.

A. Correct.

Q. Because they have different values on them.

A. Correct.

Q. Do you know where the -- where the

data from USADA 179 comes from?

A. Where the data comes from?

Q. Yeah. Do you know where -- what sequence it came from?

A. Yes. Actually, that should come from the batch file, from the front of the page --

Q. Are there --

A. -- the USADA 155.1.

Q. Are there other examples of the data not matching the summary sheet?

A. Yeah, I think it goes right all the way through. Well, the only one that I can read of them, the third mix cal acetate does actually -- does actually appear to be the same. I think we would have to move on to the B analysis to find further examples.

Q. Because all of the data isn't actually on the batch summary sheet?

A. That's correct, yes.

Q. All right. Let's turn to the B analysis.

MR. SUH: And again, Todd, could you put up USADA 331, please?

Q. (By Mr. Suh) So USADA 331 appears to

be the batch data summary for the B sequence, right?

A. Correct.

Q. And looking through the following

pages that supposedly support the batch summary, can you identify pages that contain different data than in the batch summary?

A. Well, USADA 335.12 to USADA 350.1, do you know if they'd be part of the batch, batch report?

If we look at the -- because the shorter name for the Mix Cal IRMS acetates are the only ones that we can't actually see.

MR. CAMPBELL: What was the Bates number for that one -- that first one that didn't match?

Q. The first one that didn't match, Dr. Davis, is?

A. Sorry. On the A sample --

Q. On the B sample --

A. -- I haven't actually given you any information on -- or any of that match.

I think the first mix cal acetate seems to be okay, and none of those match on that.

The second mix cal acetate, they do not.

Q. The mix cal IRMS?

A. Sorry. Mix- -- sorry. Mix cal IRMS which is USADA 0358 or Page 1 of 2, I believe.

Q. 0358. USADA 0358.

A. That's correct.

Q. So again, just holding up 0358, the data reflected on the sheet, which is allegedly the data supporting the batch summary, is not the same data?

A. No. And on the MixCalIRMS 03-3, that's USADA 359.1. Again, that does not match with the results on the batch processing file.

Q. Can you describe -- moving on to another subject now. Can you describe what reinjection is?

A. Well, reinjection isn't really particularly a scientific word. What we're referring to is taking a sample or a standard or some form of analysis which you are performing, and repeating it. Injecting it once, and injecting it twice, and then again and again and again.

Q. And based upon what you've seen here

and in the log files of the retesting -- you have reviewed the log files and the retesting?

A. I have, yes.

Q. Okay. Is that consistent with the process of reinjecting?

A. It is consistent. However, we don't know what's happening with these time gaps and don't really know what's going on here. But, if you had to ask me to make an opinion, which I'm not sure if I'm allowed to, but I'm going to state it anyways, I believe they're reinjecting samples and standards.

Q. And what would it matter if you were running samples out of sequence and picking one sample result from another sequence and discarding some data? Why does that -- isn't it all okay?

A. It is all absolutely okay, provided it is documented in a proper chain of custody. I have no problem with if we're reinjecting samples, changing sequences, doing whatever they want, even running someone else's sample in the middle of the run. It's not a problem as long as it's properly documented. Here, we have no documentation at all, so we have no idea what's

going on. We have no idea what's going on.

And if I had an engineer come back from the site where he'd run a series of analyses to test the specifications of instruments and there were time gaps and overrun samples, I would get very suspicious. Because, on the rare occasion, we have found engineers who are desperate to get home and desperate to get off site, might have a specification of a replication of 0.5 per mil over five analyses. They might not get that over five analyses and they'll run ten, and then they'll pick the best five out of those ten and present them as contemporaneous with the sequential data, which they're not -- they are not always. And an engineer who would do that would be sacked and has been in the past.

Q. And your -- when you make your opinion that it's okay in some circumstances, but it's not okay in others, with respect to this case, with what you know about in this case, how does the use of manual processing impact your opinion on whether or not this particular practice of deleting data -- how does that impact your analysis?

A. I'm not quite sure.

Q. Let me ask -- let me reask the question.

Well, let me ask -- let me start this way: Can you describe what the process of manual reprocessing is?

A. Well, there are many -- there's as many different approaches to manual reprocessing strategies as there are individuals who manually reprocess. But, in essence, it is a human subjective interpretation of where the start of a peak begins and where the end of a peak is, and if there's any corrections or background subtractions, it is, again, a human subjective interpretation on where that background point is set in order to remove contribution from compounds of the analyte.

Q. And perhaps at this time, you could take a seat at the computer.

A. Yeah.

Q. While you are taking your seat, just by way of explanation, can you describe what computer you have next to you in that chair?

A. I'm not quite sure exactly what it is. It's very old is the best I could say. The

software is approximately 15 years old and will not run off a modern PC, so we have to run it off a 486, or maybe the very early Pentiums. There are ways of getting around it but, in essence, it's very difficult to maintain these systems.

Q. And this system needed to be run on such an old computer because the software, OS/2 here is incapable of being run on a more modern computer?

A. It can be run on a more modern computer, but with a great degree of effort. The -- I won't get too computer geeky with it, but the initial partitions of the hard drive cannot be more than 400 megabytes, and then subsequent partitions cannot be greater that two gigabytes. You have to install it with a series of floppy disks, and later versions did have a CD, but you still needed a floppy disk. If the process is too fast, the whole software falls down. OS/2 is a very good piece of software for its time. But its time was 1987.

Q. And is this the software that LNDD has on its IsoPrime 1 instrument?

A. That's correct, yes, 1.67.

Q. And this is the same software that was used to calculate the values for Mr. Landis for Stage 17?

A. That's correct.

MR. BARNETT: Just to be clear, Mr. Suh, you are not suggesting that it's the exact same software?

A. This is the same version of the software; not the exact same software.

Q. All right. Why don't we -- can we -- now, Dr. Davis, what I think would be very helpful for the Panel is for you to walk through, very simply, how it is that a process of manual reprocessing works. And there are two components to it: One is peak integration, and one is background subtraction.

And before we actually begin any processes, can you just summarize, once again for the Panel, what manual peak integration is?

A. Manual peak integration is manually subjectively returning to the start and end of the peaks.

Q. And what about manual background subtraction?

A. That's applying a background

correction for any contribution for substances other than those that you wish to analyze.

Q. Now, are those substances all necessarily substances generated naturally within the body?

A. No, I think as Professor -- as Dr. Wolfram stated, those can be isotopes which are created during the wet chemistry preparation, or they can be substances which have come from the mass spectrometer and the gas chromatography processing itself.

Q. So they could be entirely --

MR. MC LAREN: Mr. Suh, I've just been handed a note here by Dr. Botré about the software.

MR. SUH: Yes.

MR. MC LAREN: There seems to be a difference in opinion. I think we should get it straightened out before we carry on.

MR. SUH: Sure.

MR. MC LAREN: Do you want to speak, Dr. Botré? Use the microphone there.

DR. BOTRÉ: I got the seat now. Just a verification on this. The version in Paris, the 1.67-2?

THE WITNESS: That's correct, too.

DR. BOTRÉ: Yes.

THE WITNESS: The difference between -2 and -4 was a change in the firm, where they changed the head on the mass spectrometer. It has no effect on this integration program at all.

MR. YOUNG: We will renew our objection. I believe if you look at their discovery brief, the head amp firmware was one of the problems that they were alleging occurred with the Paris laboratory's software. And I can cite you to the page of that if you give me a moment.

MR. BARNETT: And further, but for Dr. Botré's intervention, the testimony was, this was the exact software. And I said, The exact same? And Mr. Suh said, The exact same version? I mean, this exactly highlights why we can't cross-examine. We're left with the representation that it's the exact same software when, in fact, it's not.

A. This is the exact same manual integration software. There isn't -- there isn't a single piece of code in here that's different.

MR. BARNETT: And we have no way of knowing.

MR. YOUNG: And may I read from -- and again, this is all a surprise. But I'm reading from their discovery brief at Page 18, and they're talking about newer versions of the OS/2 software, and these include Version 1.7-3, Version 1.7-4, and then they go and list additional versions, and then they go through a list of the newer versions of the software have --

MR. BARNETT: Hold on. To clarify the record, it reads newer Versions 1.67-3 and 1.67-4.

MR. YOUNG: Sorry. Thanks.

Q. (By Mr Young) And then it goes on to say: The newer versions of the software have the following improvements: A, the newer software included a new set of electronics with a new set of firmware for the system's head amplifier that corrected errors in the OS/2 head amplifier firmware.

A. If you give me a minute to talk with one of my colleagues next door, I can get the

version 1.67-2. We should be able to load that very quickly.

MR. BARNETT: And -- I'm sorry. Go ahead.

MR. BRUNET: Well, how long would you expect that to take?

A. I would to have speak to my colleague next door. Five minutes, I should be able to tell you.

MR. BARNETT: But the very fact they didn't do it yet is the very reason that we shouldn't be engaged in this type of hypothetical inquiry.

MR. BRUNET: I understand your point, Mr. Barnett. But we already decided -- the Panel already decided that we would proceed with this testimony if it was the same version of the software. Apparently, it doesn't -- it's not the case now.

If you tell us that you need five minutes to verify that, we'll give you that five minutes.

MR. SUH: All right.

Dr. Davis, why don't you go and talk to your colleague.

(Brief recess taken from 4:13-4:25 p.m.)

MR. SUH: Mr. Chair, thank you for the Panel's indulgence.

We are trying to load the Version 2.

We are hoping it will be done in 15 minutes. We figured we would just soldier on with the testimony, and there is another computer back there that it's being loaded on; and when that happens, we'll switch it out. The demonstration was not lengthy. We would be able to fit it in before the end of the day.

MR. BRUNET: Okay. Continue.

Q. Dr. Davis, when you -- can you describe for us the process that the technicians at LNDD used when they did the manual reprocessing of the original Stage 17 data again?

Could you describe what -- could you describe that process?

A. I think as I mentioned before, it was somewhat variable, and there were differences between individuals and within individuals. The peak starts, peak ends, were dragged and moved. There was some measurement

of ratio traces to try to determine where the start and end of the peaks should be. On top of that, there was removal of points through which the background subtraction algorithm was replaced, an addition of other points and deletion of further points. And during this process, the sample is continually reanalyzed to see what effects that they had on the isotope numbers.

Q. When you say the sample was continually -- "continually reanalyzed," what do you mean by that?

A. Hopefully we'll show on the software later, you click either "analyze" or "reanalyze" on the software, and then there's two options.

The first option will recalculate the isotope ratios dependent on any variables of checks that are changed since the manual integration process is started. So if you -- if you start at the peak one, it will simply reprocess the whole data file in the same manner, so it will simply reprocess the -- that one particular element.

And then there's a "reprocess all" or "reanalyze all" which will completely

reanalyze the whole entirety of the data including that extra point which is being -- which has been changed.

Q. Dr. Davis, perhaps I could --

MR. SUH: May I invite the witness to come up to the elbow, and actually draw a sketch of what he would have shown on the computer?

MR. BRUNET: All right.

MR. CAMPBELL: Do you want some white paper? We have some here.

MR. SUH: Yes, that would be

terrific.

Q. (By Mr. Suh) All right. Dr. Davis, let me give you a pen.

A. Okay.

Q. All right. Why don't you show what you mean, what it looks like, when you reprocess something?

A. Okay. In the first instance, that's when -- that's when the peaks start, peaks end. You'll have a standard chromatogram, two axes. The Y-axis is the peak height, peak intensity in nanoamps. And then along the bottom, we simply have time. So you'll have a series of peaks that come out in various formats, possibly some

co-eluting, some not.

What the software does, it will come along and it will look at the rates of change in the slope and various other parameters, and it will determine that point X at the peak is the start of the peak, and point Y is the end of the peak. It then draws down the line to delineate that peak.

Now, depending on what functions you actually choose, you may simply just draw a line from one point to the other, and the area of the peak becomes this area here.

What was happening with LNDD was, they were going into a menu, which is -- I believe it was "View" -- I can't quite remember -- and then they select "drag" from the -- imagine this is a computer screen.

The cursor then changes to a square. They can come down and select one of these points here, and then they can either move it to the left or to the right and change the point.

Q. And Dr. Davis, does this process have an impact on the isotopic values?

A. Absolutely. It can -- it can shift the values by tens of a mil. I think as the SOP

states itself, the LNDD, that any manipulation in this format can have a very significant result, I think was the exact phrase that was used in the documents.

Q. And can you show -- let me give you another piece of paper to show the process is -- well, to show any other processes related to the manual reprocessing. Illustrate any other processes that you --

A. Okay. So we saw the peaks start/end, which I'll just put down here just to remind us where we're up to.

MR. BARNETT: Mr. Suh, could I ask you to just mark these as exhibits for us and get copies?

MR. SUH: Absolutely.

A. So relative to every peak there is a

ratio, which looks something like this; and the ratios are all slightly -- and you should get this characteristic upward and downward swish. This is caused by what is referred to as mass discrimination within the GC. The 45 peak comes out slightly before the 44 peak. That's why you have got this up-and-down -- up-and-down movement.

Now, what happens in OS/2 is if the background subtraction is enabled, then a line of fit is placed -- it's a polynomial line. Basically, it's a -- it's a line where the software comes along, takes a number of data points, and then the line best fit is placed between those data points. And that line is then used to remove some of the background from the peaks at the bottom.

Now, the trouble we have with OS/2 is that, when we tried to develop MassLynx, which is the next version of software, actually, developed for the IsoPrime, all the records as to how this occurred have been lost, so we have no records of the algorithm and how this process actually works. I think we can take a fair guess, but we generally don't know. So we do not know how applicable this process is or is not to the application at hand.

Sorry. I'm just getting back to the

question at hand, the question I have been asked. What I just described is actually an automated background subtraction.

MR. CAMPBELL: Dr. Davis, you said you lost this?

A. Me -- not me personally.

MR. CAMPBELL: Well, the company?

A. Yes.

MR. CAMPBELL: Did they lose it when they were traded or something?

A. No. There were -- a number of different companies have been bought and sold over the years, and during the process of moving from one factory to another, documentation on the OS/2 software has been lost. That does not exist anymore.

So I -- I'm sorry. I didn't really answer the question that's been asked there. This is the automated background correction.

What the laboratory staff would do as they're coming along, and they were using what we call a drag option, which essentially removes these background points, they were then adding new data points. I'm actually going to do them in a slightly unusual way. This is not how they did it, but just to give you some idea how it fit. They would then go in and choose the points which they felt best reflected the background. I've probably already drawn the line that best fits. I'm moving this up for an

example. And then they reprocessed the software, reanalyzed the software, and another line that best fit is placed in, and the first one is ignored.

Now, this can have a very large effect. This can -- this can shift by 20 per mil quite easily, the results.

Q. Let me show you what is marked GDC 970.

MR. YOUNG: Can we also have that marked as an exhibit for the second picture that he drew?

MR. SUH: Sure.

Q. Do you recognize what GDC 970 is?

A. Yes, it's the F- -- F3 fraction.

Q. Okay. And could you describe the baseline trace on the OS/2 program and its use in determining the baseline and peak integration?

A. When you say the "baseline trace," you mean the background trace?

Q. Yes, the background trace.

A. Well, you can see it. Essentially, it's the light line going down there. Most of what it actually does on the ratio, no one really knows.

MR. CAMPBELL: I'm sorry, Mr. Suh.

MR. SUH: Not at all.

MR. CAMPBELL: I guess I'm looking for this number 970. What did you say?

A. What we've got here at the top is the ratio of the 45 over the 44, and then you'll see a slightly lighter portion going down the middle. This is the -- this is the background subtraction line, it's the polynomial fit that's been placed there.

I was asked how does that affect the -- how -- how does that line fit, and how does that affect the result. And I said, Well, I -- I don't -- I don't know. Nobody knows. Because the algorithms to describe this have been subsequently lost.

Q. Okay. Let me show you just another example. GDC 964. Same thing.

A. Yeah. It looks like it, mm-hm.

Q. And could you point out how you would use the 45/44 trace -- the 44/45 trace with respect to resolving baseline issues?

A. Resolving baseline issues as far as background corrections?

1

Q. Background corrections.

A. Well, in this case, you -- assuming that fitting the line through the middle of the ratio gives you the best baseline, that's probably not a bad -- bad example. The problem is, if you have got peaks for the ratios that don't fall on the baseline, the baseline's only going to be applicable to those peaks, which this goes right through the middle. So, it's -- without being able to zoom in, it's virtually impossible to really say exactly what's going on there.

I mean, to give you an example of what the technicians at LNDD might do, you'll see a couple of boxes, zoom-in as we're going through, and that must be it; you'll see a small box -- sorry -- a small box there, a box there, a box there, possibly a box over here. Oh, sorry. You can't see that. I apologize.

So you see this -- more?

Q. More?

A. See my pen there? Right. Fine. It's not printed out very well, but you see a box here, here, possibly here, possibly there, but I think there's a few more, there's one

there.

Now, these are all data points which the technicians at LNDD have disabled, and they've added further points which we can't see from this printout. And then they have reprocessed the whole -- the whole of the analysis to come forward with these results that you see at the bottom.

Now, when they did this, it's possible to simply click on the file -- the "File" option here, and hit "save parameters." If they did that, they could reprocess this at any time they wanted. They could get exactly the same numbers. They chose not to do that. So, therefore, the numbers that we see from the initial reported results to the reprocessed results are different, and some of them quite significantly.

Q. All right. Why don't you -- why don't you have a seat back at the witness stand.

By the way, if you were able to use your computer program, could you show exactly how this works?

A. Exactly, yes.

Q. All right. Now, Dr. Davis, this

last point you were making, are you suggesting that the OS/2 program does, in fact, allow you to save the data from the first reprocessing?

A. Even the manual reprocessing, yes.

Q. In the manual reprocessing phase?

A. Yes.

Q. In other words, there's nothing in

the software that would prevent you or disable you from actually retaining the data as a record?

A. No.

Q. And is there any reason, therefore, why you couldn't be able to reproduce the same results when it was reprocessed?

A. Correct.

Q. There isn't any reason why.

A. No. There's no reason why.

Q. And that's because, if you would have saved the data, you could put your points in exactly the same place as they were when you did it the first time?

A. Well, the software would do that for you.

Q. Okay. In other words, it would be saved as a file.

A. The structure for OS/2 is you have two files: You have your data file, and you have a matrix file or a processing file. And one contains the actual data points, and the other contains the integration information. And essentially, what you're doing is you're saving data to the second file to show -- so, in the future, when you reprocess it, you can see exactly what you've done in the past. It's not a true quality trail, but you can save the very last changes that were done.

So you can change -- you can do all the manipulation that you want and save it. The problem with MassLynx, you could do it four or five times and save it at four or five stages. With OS/2, you can only do it once. You can only do one -- one manual reprocess and save it.

Q. So just so I understand what you are saying, there is -- when LNDD determined these results, the first time on Stage 17, the computer program had a function which allowed them to save where the points were selected manually, so that when it was done again, right here, it could have been exactly reproduced?

A. Yes, the second decimal place.

Q. But that was never done?

A. No.

Q. All right. And did you watch the LNDD technicians when they tried to reprocess the data?

A. I did, yes.

Q. And did they try to do it over and over and over again?

A. In certain circumstances, yes, in certain samples.

Q. And did you watch them very carefully?

A. I took contemporaneous notes, yes.

Q. All right. And based on those contemporaneous notes, did you create a chart?

A. I did.

Q. And is the chart this chart right here?

A. I believe so, yes.

Q. Okay. Can you explain to the Panel what exactly this chart is?

A. Basically, I sat there with a pencil and just, every time they did something, just basically checked off exactly what they were doing, and this -- starting from the right,

which is the most logical place, I guess, of most of the charts, if you will, the numbers of times peaks start/end was changed. So that was the number of times during the manual reprocessing that they moved any peak within the chromatogram, any peak, they changed the start and end manually.

Then prior to that, there's a number of times samples were reprocessed. There was a number of times, then after they'd done something, they went back and reanalyzed it so they could see the new effect of the changes on the isotopic numbers, because the isotopic numbers, of course, are displayed at the top of the sample peaks.

And the next one is existing back

points dragged to a new point. Now dragged is a term that the OS/2 software uses. It doesn't actually physically mean clicking and dragging it to a new point. When you drag it, you disable it. It's a poor description of part of the software, but to be technically correct, that's what the software does.

And then, finally, we have a new point added to the background trace. This is on

the 44 -- 45/44, where new points were added by the technicians to fit the background polynomial fit line.

Q. And just using this fraction, the fraction F3, the one that I have circled the values for, the number of times that reprocessing was attempted, in your opinion, watching what was going on, why was Ms. Mongongu trying -- why did she have to do this so many times for each column?

A. Because she was struggling to get the line to fit the way that she felt it should fit. And then when I asked her directly, I said, "How are you choosing those points," she said, "I'm using my experience."

Q. And when she was choosing these points for each one of these categories, did it change the isotopic value?

A. Yes, absolutely. Very significantly

sometimes. So significantly that, in certain instances, they reinitialized the sample and started over again.

Q. Can you show on your chart where it shows -- well, why don't we go down.

So this first box, this first

rectangle, is the reprocessing by Ms. Mongongu?

A. That's correct, yes.

Q. And then, can you explain what's below that? What's this data show?

A. That's the processing by Ms. Frelat. And so she started off with a mix cal acetate. I believe these are in chronological order. If I'm wrong, I do apologize. I do believe they're in chronological order.

So, when Ms. Frelat started processing, she -- the first sample, she seemed to do okay, quite a few new points. The second sample, she was unable to actually make the numbers change. The isotopic numbers did not change even despite moving all the background points. Now, this is a -- what was -- what happened is, this is a fault with OS/2. It still displays the background polynomial fitting when one is not used if you initialize it first.

So she had disabled -- she had not only disabled the background polynomial and was trying to do these background corrections and nothing was happening. And the reason why is because she hadn't configured the software correctly.

So she reinitialized the software. And there is a statement within the software to allow you to reinitialize. She did that and started again, still could not do it. And then on the third attempt, I think it was recognized what the problem was, and finally successfully reintegrated the peaks.

Q. And are these numbers in this chart, again, all of the times that either Ms. Mongongu or Ms. Frelat tried to adjust or correct the values to bring it back within, or close to within, what previously had been determined?

A. I don't think they were trying to get the numbers. I think they were genuinely just looking at the baseline and trying to fit -- trying to fit the lines and fit the piece the best way they could. But I -- I have -- I don't know. I generally don't know what the -- what their motivation was behind what they were doing. I did -- again, I did ask repeatedly why they were doing what they were doing and, again, the answer I got was: Using their experience.

Q. And again, when this process was going on, were the final isotopic values changing?

A. Absolutely. All over the place.

Q. So it's fair to say that when you do, in fact, do this kind of reprocessing that these adjustments make substantial impact on the final value?

A. Significant, as is -- as stated in the SOP.

Q. You have had the opportunity to watch Ms. Mongongu and Ms. Frelat, the two technicians who were responsible for the GC IRMS testing, actually conduct their procedures at LNDD.

A. Correct.

Q. And did you also have an opportunity to see them, and the processes that they undertook, while the retesting process was going on? That's the testing of the B Samples from the other stages in which Mr. Landis was actually negative.

A. I did.

Q. Did you come to a conclusion, based on your experience about the technicians', Ms. Mongongu and Ms. Frelat's, abilities and their competence to operate the IsoPrime 1 and IsoPrime 2 instruments?

A. Just as far as mass spectrometry --

Q. Yeah.

A. -- or chemistry in general?

Q. Well --

A. I think they -- they clearly did not understand the instrument. And, as I said, I had to help them actually load the software on -- sorry -- the reprocessing data on. I had to help them load it onto the machine, and they were obviously trying to help each other during the reprocessing and generally did not seem to know how the software worked.

Q. I'd like to show you, once again, what is marked GDC 1356.1. Do you recognize it?

A. I do, yes.

Q. And did you have an opportunity to review it?

A. I did, yes.

Q. Could you very, very briefly summarize for us again what relative retention time is and why you need to do it.

A. Relative retention time is the time in which different compounds elute from a GC cup column relative to a known standard.

So, typically, a urine sample will

respond to an internal standard and from that internal standard, you can measure the time to all peaks of interest and then use those as a form of identification for those peaks.

Q. And looking at the values on the A and the B Sample, were you able to see that the relative retention times for the samples, both the A and the B Samples, were very substantially out of specification?

A. Very different, yes.

Q. From the perspective of a person who is very familiar with the IsoPrime instrument, does it cause you concern and impact your opinion about the reliability and accuracy of the final isotopic measurements in this case?

A. Without a doubt. We can't be certain we've identified -- that LNDD identified the correct peaks.

Q. And, again, why is that important?

A. Because if you -- again, if you're reporting isotopic values for something which is not pdiol, then you're not going to have a true -- a true false positive or a true positive or a true negative. The numbers will be meaningless.

Q. As part of your work experience with IsoPrime instruments, have you had the opportunity and the responsibility to review the quality of chromatography?

A. On a regular basis, yes.

Q. And again, what is the importance of chroma- -- chromatography to accuracy and reliability of testing? Does it matter?

A. It's the key to it. If you don't separate chromatography, the science of separating compounds, and you do not separate the compounds, you have contribution from something other than your analyte; and therefore, the isotopic number is not a true iso- -- true reflection of the isotopic value of that compound.

Q. All right. I'm going to show you some chromatograms in sequence, and why don't we start with LNDD 1062.

MR. SUH: And maybe, Todd, you could put them up a little brighter, and then maybe on the same screen, you could put LNDD 1110.

MR. WEISS: These are from Exhibit 88.

Q. (By Mr. Suh) They are Exhibit 88,

LNDD 1062 on the left side of the page, and LNDD 1110 on the right side of the page. They are from -- they are the Fraction 3 from Stage 11.

Have you seen, prior to today, these chromatograms?

A. Yes.

Q. And do you have an opinion about the quality of the chromatography here and the reliability of it?

A. It's very poor. And I think, again, we should point out, this flat line here is not a nice clean baseline. That is when whatever is coming out from the GC column is sent off to the flame ionization detector. You're basically chopping out a bit of whatever is there. And you still have this very unusual artifact of the sloping, of the downward-sloping baseline, when the temperature of the GC is rising. So that means that there's something bleeding out, possibly from the injection port, and contributing to the baseline. I don't know what it is or why it's been caused, but it's highly unusual --

Q. Doctor -- I'm sorry --

A. -- Sorry -- and then, allegedly, we

have our internal standard somewhere around this portion here, and I can see no baseline separation for that.

Q. Dr. Davis, do you know what the isotopic value is of whatever it is in here, in this area?

A. Personally, from looking at that?

Q. Yes.

A. Not a clue.

Q. It could be a naturally occurring compound or it could be a chemical compound.

A. Actually, let me check.

This is actually a -- you can tell by the scale -- this is actually a MassLynx printout. The OS/2 does currently give you a value for the background. So for this one, you certainly could -- you certainly could identify what the background value of that area is.

We generally call it an unresolved complex mixture, or the engineers refer to it as a squashed hedgehog.

Q. All right. Dr. Davis --

MR. SUH: Todd, perhaps you could put up LNDD 870 and LNDD 894.

Q. (By Mr. Suh) Have you seen this exhibit?

MR. JACOBS: It's Exhibit 86.

Q. It's Exhibit 86.

All right. Do you see that these are the two chromatograms that are associated one with another?

A. I'm sorry. I can only see one chromatogram at the moment.

Thank you.

Q. Perhaps you could tell us which stage and which fraction those are from.

It might be annotated at the top. Those are my --

A. It's Fraction 3. And I can't see -- the stage -- that would be the -- that would be the later one, so it would be the reprocessed ones, I guess. Is that correct?

Oh, it's from Stage -- I do apologize. Stage 15, Fraction 3. So I was looking at the printout on the actual description of the analysis.

Q. And do you have an opinion about the chromatography in this -- about the chromatography as shown in LNDD 894 and 870?

A. Well, it looks pretty poor. Again, I have to state, just looking at the paper printout, it's very difficult for anybody to make any definitive conclusions to that without actually being able to go in and actually look at it. It does look pretty poor. You have a lot of carroting peaks, the baseline seems to be all over the place, so I'd be very, very cautious in using any results from that chromatogram.

Q. Could you please turn your attention to LNDD 968 and 991.

Have you had an opportunity to look at these chromatograms --

A. I believe so, yes.

Q. -- before today?

And do you have an opinion about the

quality of this chromatography?

A. Well, the chromatography on the MSD looks a little better. But again, it's very difficult to say because we can't zoom in. We're still seeing some carroting peaks. But if you look at the actual MassLynx integration, you'll see that peak 13, the software has decided that essentially the tail of peak 13 is,

in fact, a peak. So it will be difficult to see. On this one over here, you'll see there's this portion here. I think if you can zoom in there, it will be quite clear that that's not a -- not, in fact -- yeah, you see there?

That's -- that's -- that's not a peak. There are some pixelation there. That's a -- a tail or a co-eluting product. It's certainly not a baseline separated peak. To get an isotope number for that would be impossible.

MR. SUH: Todd, perhaps you could put up LNDD 681 and LNDD 704.

Q. (By Mr. Suh) Dr. Davis, have you had an opportunity to take a look at these chromatograms before?

A. I have, yes.

Q. And have you come to an opinion about the chromatography in these documents?

A. Likewise, it's pretty poor. If we look at some central peaks off here, Number

11 -- let's see, we have a rather strange integration at the bottom where the baseline of the peak has been -- the software has decided to draw a line going upwards like that. And, again, that's going to cause quite significant

contribution to error. It's certainly not a valid integration.

We also see, over on the other side, these three peaks here, it's certainly all co-eluting, the triplet there. The baseline's very difficult -- I mean, it's very difficult to say that those -- you could use the numbers from that to form an integration.

MR. SUH: Todd, perhaps you could put up USADA 171 and 173.

Oh, actually, no. That's all right. That's all right.

MR. BRUNET: Counsel, it's 5:00. We'll adjourn the hearing.

But, before we do that, about tomorrow morning. Before we do that, do I understand that this is the last witness, so there are no list of witnesses for tomorrow?

MR. SUH: That's correct.

MR. BARNETT: We may have rebuttal witnesses, as we sent by e-mail last night and discussed.

MR. BRUNET: Are those confirmed at

the present time or --

MR. YOUNG: For one thing, we have

to see the end of Dr. Davis' testimony.

MR. BRUNET: Okay. So no rebuttal witnesses are confirmed yet, and we'll continue tomorrow morning at 9:30.

MR. SUH: Can we have a sense of whether or not they're actually going to call any so we can prepare?

MR. YOUNG: I would expect to call Dr. Brenna, and whether we call other rebuttal witnesses, I just don't know.

MR. SUH: Mr. Chair, also, we would -- I'd like to check on the status of the computer. If the computer has the software loaded, we would like to actually go ahead and just give it to them right now and then start with the demonstration tomorrow morning.

MR. BRUNET: That's something that I would hope the parties would resolve after this is adjourned.

MR. JACOBS: Okay. Thank you.

(Recessed at 5:00 p.m.)

BEFORE THE AMERICAN ARBITRATION ASSOCIATION

North American Court Of Arbitration For Sport Panel

TRANSCRIPT OF PROCEEDINGS, May 23, 2007

UNITED STATES ANTI-DOPING AGENCY,

Claimant,

vs.

FLOYD LANDIS,

Respondent.

PURSUANT TO NOTICE, the above arbitration hearing was held at Pepperdine University, Department of Law, Malibu, California, May 23, 2007, commencing at 9:30 a.m. before Debra K. Resling, RMR, Certified Realtime Reporter and Notary Public.

AMERICAN ARBITRATION ASSOCIATION PANEL

MR. PATRICE BRUNET, 1010 De la Gauchetiere West, #2260, Montreal, Quebec H3B 2N2, Canada. E-Mail: Pbrunet@brunetavocats.com.

MR. RICHARD H. MC LAREN, Innovative Dispute Resolutions, Ltd., c/o McKenzie Lake Lawyers, LLP, 300 Dundas Street, London, Ontario N6B 1T6, Canada. E-mail: Mclaren@mckenzielake.com.

MR. CHRISTOPHER L. CAMPBELL, Chapman & Intrieri, 2236 Mariner Square Drive, Suite 300, Alameda, CA 94501, United States.
E-mail: Ccampbell@chapmanandintrieri.com.

APPEARANCES

MR. RICHARD R. YOUNG, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United

States Anti-Doping Agency.

MR. DANIEL J. DUNN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 1700 Lincoln Street, Suite 4100, Denver, Colorado 80203-4541, (303)866-0365, appeared on behalf of the United States Anti-Doping Agency.

MR. MATTHEW S. BARNETT, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MS. JENNIFER SLOAN, Attorney at Law, from the Law Firm of Holme Roberts & Owen, LLP, 90 South Cascade Avenue, Suite 1300, Colorado Springs, Colorado 80903, (719)473-3800, appeared on behalf of United States Anti-Doping Agency.

MR. MAURICE M. SUH, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333 South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. DANIEL L. WEISS, Attorney at Law, from the Law Firm of Gibson, Dunn & Crutcher, LLP, 333 South Grand Avenue, Los Angeles, California 90071-3197, (213)229-7388, appeared on behalf of Floyd Landis.

MR. HOWARD L. JACOBS, Attorney at Law, from the Law Offices of Howard L. Jacobs, 4210 Lewis Road, Suite 5, Agoura Hills, California 91301, (818)442-0408, appeared on behalf of Floyd Landis.

MR. PAUL SCOTT, Chief Operating Officer, 2160 Century Park East, #2108, (310)203-0354, Los Angeles, California 90067, Agency for Cycling Ethics.

Participants behind Counsel Table: Caroline Hatton, Larry Bowers, James Padilla; Floyd Landis, Amber Landis, Mr. and Mrs. Paul Landis, Arnie Baker, Simon Davis, Brent Kay, Todd Thompson.

Panel Participants: Dr. Francesco Botré, Rosalie Brunel.

I N D E X

USADA WITNESSES:

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132 Chart Regarding GC/C-IRMS 1936
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1372 Printout of Data Files 1862
1373 Printout of Data Files Processed on an earlier Version Software 1863

CLOSING ARGUMENTS
By Mr. Young 1996
By Mr. Suh 2023
By Mr. Young 2075

(Commencing Wednesday, May 23, 2007, at 9:37 a.m.)

MR. BRUNET: Good morning, everyone.

We will resume the hearing in the USADA/Floyd Landis arbitration, Day 9.

Could I have appearances, please?

MR. SUH: Good morning, Mr. Chair. Maurice Suh, from Gibson Dunn and Crutcher, appearing on behalf of Floyd Landis, who is personally present with us here today at counsel table. And with me are Howard Jacobs, Dan Weiss, and our consulting expert, Paul Scott.

And Mr. Jacobs will continue the examination of Dr. Davis.

MR. YOUNG: We're still here. For USADA, Richard Young, Matt Barnett, Dan Dunn, and Jenny Sloan.

MR. BRUNET: I have a very important matter to raise to the attention to the parties. Yesterday, my colleague, Chris Campbell, had a birdie.

(Applause.)

MR. BRUNET: And for the record, it's not his first one.

The time update at the end of the day yesterday is Landis had 1 hour, 40 minutes remaining, and USADA had nine hours, 46 minutes remaining.

Is there any confirmation that there will be a few hours to be given to the other side so we don't have to stop in the middle of the day?

MR. YOUNG: Absolutely.

MR. BRUNET: Okay.

Could the Panel have an update on the software issue, where we left off yesterday, before we continue with the examination?

MR. YOUNG: Yeah. They delivered the computer over to our hotel a little after 8:00. They told us it might not work without a printer. It's password-protected, so we had to go back and forth to get the password. We got the password a little after 10, and, in fact, it doesn't work without the printer. You can get it up, but whenever you try to hit calculate, it would crash again. So we really weren't able to do much with it.

MR. BRUNET: Thank you.

MR. JACOBS: If I can provide just a

little more information, and Simon Davis could testify to this also, but parts of the software work without a password. Parts are password-protected. You can run manual data processing without a password. The only part that's password-protected is the GC off-line portion. And the password -- it's the default password that came with it, MicroMass has said to use the main password which is MicroMass, so there was no special password.

MR. BRUNET: Okay. Thank you.

We're missing Mr. Suh. Or Mr. Jacobs, you are in the examination.

(Mr. Suh left the room.)

MR. BRUNET: Could we have the witness take the stand?

(Mr. Simon Davis retook the stand.)

THE REPORTER: Remind you of your oath from yesterday.

THE WITNESS: (Nod of head.)

EXAMINATION

BY MR. JACOBS:

Q.   Good morning.

A.   Good morning.

Q.   Yesterday, when you brought up the

screen, we were looking at Optima, the OS/2 version 1.67-4. Do you remember that?

A.   I do, yes.

Q.   Can you tell us, for the purposes of reprocessing data, if there's any differences between the 1.67-4 and the 1.67-2?

A.   Categorically not. It's identical.

Q.   And how do you know that?

A.   Because I was present when the upgrades were made for 1.67-2 to 6-3, 6-4. These were purely matters to actually make the software work with a different head amplifier. It had nothing to do with manual reprocessing, reintegration.

THE REPORTER: I'm sorry, it had nothing to do --

A.   It had nothing to do with the manual reprocessing reintegration software.

MR. JACOBS: I'd like to mark as the

next GDC exhibit, GDC 1372.

(GDC Exhibit 1372 was marked.)

Q. (By Mr. Jacobs) Can you tell us what this is?

A. This is a printout of a data file which I wish to demonstrate the manual

reprocessing on. This is an automated reprocessing of that file with the results which are given when the software is allowed to do everything it wants automatically. You'll notice at the top -- I have noted -- at the very top. I have noted the version number of the software. This was calculated on version 1.67-4.

Q. And then the values down here are the values you got when you did what?

A. The values here are when we just did the standard reprocessing, and these are the delta per mil values, the same sort of values that we have been discussing all week in Mr. Landis' urine sample.

Q. What are the times we see? The acquisition time and the current time?

A. The acquisition time -- I'm afraid it's a little bit behind, because this is -- I'm afraid, it's still in UK time -- but that's the time of the computer clock rather than the real-time, so it's eight hours behind. So I apologize for any confusion that might bring.

Q. I'd like to mark as the next exhibit, GDC 1373.

(GDC Exhibit 1373 was marked.)

MR. BRUNET: Thank you.

Q. Can you tell us what GDC 1373 is?

A. This is the same file processed in the identical fashion, but on a different computer, with the earlier version software as was used in LNDD Version 1.67-2.

Q. And did you check to see that the numbers we should be looking at are these numbers here?

A. They are, yes.

Q. And did you check to make sure that those numbers were the same on what was marked as GDC 1372 as compared to GDC 1373?

A. That's correct, yes, they're identical.

MR. YOUNG: May we get a clarification? I mean it sounds like from this line of questioning that they were never able to get the old software on the computer. Is that --

MR. JACOBS: No.

MR. YOUNG: Okay.

Q. (By Mr. Jacobs) Can you tell us why you did this?

A. I just wanted to make sure that there was no confusion that I'd used version 1.64 in any way to get numbers other than those that would be derived from the same place as 1.67-2. But it was demonstrated quite clearly, the two pieces of software, as far as manual -- as far as the manual data processing goes, are absolutely and totally and unequivocally identical.

And I apologize if there was any confusion by this yesterday. It wasn't an attempt in any way for me to mislead anyone within this court. So I apologize to the Panel if any confusion was caused.

Q. Now, yesterday we were going to -- well, let me step back a little bit.

You spent some time yesterday explaining how, in OS/2, making changes manually in background subtraction or in manual processing can affect the results; is that right?

A. I did, yes.

Q. And yesterday you were prepared to show how that works with the 1.67-4 software. Do you remember that?

A. That's correct, yes.

Q. What do you have up on the screen now? Is this the 1.67-2 software?

A. It is, yes. And you'll see, when I open the software, that's the case.

Q. Okay. Why don't you walk us through how you would start.

A. Well, just to give you a brief background, the operating system which you see in front of us here is, in fact, OS/2, Version 3. OS/2 was originally developed in 1987. It was around about the same time as Windows 3.1, to give you sort of a timeline.

From the time of the development, this was a very good operating system in MicroMass, when they were determining which -- to switch from DOS, because DOS was the version of software before this, determined the OS/2 was superior to Windows 3.1, and that's why the operating systems for the mass spectrometers were subsequently written on this OS.

Q. So if you wanted to open up a file to take a look at it or process it, what would you do?

A. Well, the GC software is basically

all contained in this window here. We have a text editor here. We have a button to take us through to the DOS prompt, it's a working DOS. We then have the program here, GC 167. This actually controls the instrument itself, so it provides us with the ability to open and close files, start a run, set up a batch list, et cetera, et cetera.

There's also an off-line version of this which allows you just to go in and helps train people, and various other applications, but doesn't actually communicate with the mass spectrometer.

And then, finally, we have the data processing software, which is, again, a stand-alone package.

So if you open this up, you'll notice that no password is needed to get into this.

Q. Okay. And then if I wanted to find data, what would I do?

A. You simply open -- you go to the file, load data. Now, I have -- I requested a friend, a colleague at Berkeley, runs the Berkeley National Laboratories, to send me a

random chromatogram. I don't know what this chromatogram is of. It says BTEX, so I'm guessing it might be BTEX, but I actually don't know.

I simply highlight it.

Q. Let me ask you, what is BTEX, do you know?

A. It's a volatile organic compound, it can be a range of different compounds.

Q. So when you open that up, you get a split screen. Tell us what we see on the top screen.

A. The top screen is the flame ionization detector. I think I mentioned it yesterday. It's used to simply burn off solvents from the sample. It does provide a lot of information.

I think, if you remember, some of the chromatograms, you see in Mr. Landis' sample -- you see a very flat baseline at the beginning of the analysis. That's because everything is going to this detector here and not to the mass spectrometer. So, as such, in certain samples you'll actually get quite a lot of data along here. You get peaks coming out here, which we

don't see down here, which I think is probably the case in Mr. Landis' samples. But we didn't get to see that. In this case, it's not particularly relevant, so I'll actually just remove that to make things a little easier to view.

Q. What do we see now?

A. What we're looking at now is the

traces from the three detectors in the mass spectrometer. These are labeled by different colors. We have the major, which is labeled such, because it's the most abundant ion. This is mass 44, so that's CO2 with carbon, a carbon 12 value.

We then have Minor 1, which is mass 45, which is CO2 with a carbon to, carbon-13 value -- with carbon-13. And then Minor 2, which is to do with the oxygen which, as I said before, is not of any use in this particular case.

Then what we have is a series of compounds. These are -- every peak is an individual compound, and then at the end of the run here, we see two flat-top peaks which are the reference gas let in by the reference gas

bottle, as I explained yesterday in the diagram. And if we just zoom in a little bit, it might be a little bit more informative.

Here, we see --

Q. So what you just did is you zoomed in on a single peak?

A. Yes. I zoomed in on a single peak, and I zoomed back out again to go back out to the original. So you zoom in. And what you can see here is, you can see the three different peaks and how they all come out approximately the same time, slightly different time, but approximately the same time. So we have a 44 here, the carbon 13, carbon 14 -- I'm sorry -- carbon 12, carbon 13, and the oxygen. And as I said, we're not really interested in the oxygen, so I can remove that.

So what this whole case is about is the ratio from this peak here, this peak here. Now, it's a little bit confusing because the software rescales it. This major peak here is massively bigger than the blue peak. The blue peak, in reality, is just a little dimple just down at the bottom here. But for viewing purposes, the software corrects it. And there's

a bit of a flaw in ours, too, because it gives you the wrong scale on the sites, so if anyone was wondering why that's so different.

So the first thing you want to do when you're looking at these samples is look at the ratios. So what happens is, you go to file, and you load the initial parameters. Now, these are the parameters that were saved at the time that the data was acquired, the time of the data that the sample was actually run on the mass spectrometer.

So what's happened now, it's now loaded up the files. We have the two-over-one, the 45 divided by 44, the carbon 13 divided by the carbon 12, the actual intensity beams on the top, and then the oxygen at the very top, the top ratio. So just remove the top ratio, because you don't need it. So this is a ratio, this is the actual beam sizes.

So again, if I just focus in on one individual peak, what I can do is link the scale, so if I link this scale here and this scale here, we now see the ratio for this peak. It's rather characteristic. You see it rises up and swoops down and then goes back up again.

Q. So both the top and the bottom are just different representations of the same thing?

A. Well, this is new data that's created from this data. This -- every single point on this line here is essentially a corresponding point where you divided the 44 by 45, and that's the ratio, which we're looking at. So this data here is directly extrapolated from this peak.

Now, I think as I've mentioned before, the 45 peak comes out to the GC chromatogram slightly before the 44, and this is where we get this characteristic up and down swoosh. Now, when the data is actually processed, what happens is the apex, which is the point of these two peaks, are brought together, so they're both actually at the same point.

And in reality, what happens is this swoosh disappears, and this becomes a single up and down, or a single down and up, depending on the isotope ratio. But this is the characteristic thing that everybody looks for.

In MassLynx, we actually did the

correction in real-time, so we didn't get this up-and-down swoosh. We just got the initial -- the peak-like U-shape. And the customers started complain because they thought the instrument wasn't working properly, so we had to put it back to the original settings to keep people happy. That's essentially it.

Q. Okay. If I wanted to take a look at background subtraction, what would I do?

A. Well, the first thing you do is look at -- is actually determine where the peaks start and end. So if you want to look at where the peaks start and end, you click on view, and then select sample.

And what you see here, you see this is where the apex of the peak has been detected. This is the isotopic value that the software has determined. This is the start of the peak; this is the end of the peak. And that's been done by an algorithm within OS/2 and been determined completely automatically.

Now, what was happening with LNDD was, they were looking at these chromatograms -- they were a lot more dirty than this, but I can demonstrate problems with these interfering

peaks later on -- but if you just for simplicity reasons just deal with this single peak, they were adjusting both the start and the end of the peaks, and certain to certain conditions, and also background fit for ratios through here.

So the first thing I'm going to do is actually switch the background correction on before I do anything. Go to parameters, integration. Now, there are a couple of parameters here. I will use the default parameters just to make sure there's no question of manipulating it. Select background. And I just switch background correction on here. Click okay. Click okay.

Now, what I can do is that now, by eye, move start and end of the peak. So I can take this value and move it up here, and I'm doing quite trusting movements here by the way, so I'm not suggesting that this is what was done at LNDD. And then I go to calculate and reanalyze. And you'll see, there, I just shifted the isotopic value by two per mil.

Q. Now, if I wanted to save that so

that it would be a record, what would I do?

A. Well, you've just seen a fault in

the software there, because the manual reprocessing doesn't work properly. You'll notice the peak start and the peak end have just jumped back to their original position, so I have to repeat that process, and reanalyze it again, and now, you see, because of the fault in the software, you get very different numbers. But now we go from minus 27 down to minus 19.

If I wanted to save that, I simply click on file, save parameters. And, "Are you sure you wish to save the parameters? Previous parameter file will be overwritten." Click okay. It is now saved.

So what I can do is, I can go back to the initial parameters, view the sample, go back to the minus 27.12. File. Load parameters. Do sample, and then go back to the reprocessed. So you can manipulate the data any way you want, save the parameters, and then come back anytime you want and reprocess that.

I think, just for clarity's sake, I shall just close the program down, and open it up again, and just demonstrate that's still the case.

Q. Okay.

A. So just close that down. Reopen it, file, load data, test. The same BTEX file. Initial parameters. Get rid of some of the junk we're not particularly interested in.

I will zoom back into the peak, which I believe is this one here, a few seconds. View sample, file, load parameters, view sample, and we're back again. So, there's no question that we can save any parameters which we choose to change.

Q. And the type of setting, the start and end of the peak manually, not saying exactly like you did it, but this type of process is something you observed at LNDD?

A. That's correct, yes.

Q. You observed that when?

A. I observed that on the reprocessing under the presence of Dr. Botré some week. I'm afraid I have forgotten the timeline. It's all meshed into one.

Q. There was also -- I can't remember who either -- but somebody testified that, as you're doing this, you can bring up a box automatically that will do some calculations?

A. Well, what it is is a measuring

tool, and what the technicians at LNDD were doing were looking at the ratios to see whether they could see where peaks were co-eluting. And what they would do, they would measure the distances on the ratio and compare that to the start/end of the peaks down here. So as you can see, if I move this cursor along, you'll see in this box down here, it will be time values which relate to this -- the X-axis along here and the ratio value here.

Q. Just so we can be clear, because I don't know what I'm looking at, what is the major -- tell us what each of these is as they relate to the actual chromatogram.

A. Okay. This is the tool that measures the beam intensities and the time on the X scales. As I move this through, you will see, as we hit the peak, the major, which is the 44, and the carbon 12, increases; the minor 1, which is the carbon 13, increases; up to the apex; and then, as we go down, the numbers start to drop off and increase the baseline.

So, in essence, what it's doing is just giving you a figure for each one of these data points which is plotted to produce this

graph here. So I will get you the graph.

Now, this was not the only process we were carrying out, of course. They also carried out background subtractions manually.

So background subtraction, if I just share it, these peaks. You see the pink line that runs through the middle here, of the ratio trace. This is the ratio called a manual fit, which is used for backtrack subtractions, as it's labeled here. Background 2-over-1. You see a number of green crosses. These are data points, which background subtraction, the algorithm in the computer, determined as being the points to which the line should be fitted.

So what the software is doing is saying, I need to fit a line. How do I fit it? I'll take these points here, here, here, and here; and then I'll do a calculation, the ratio of the manual, and then I'll draw a line through it, and that's the background.

Q. And the point of doing that is to try, as best as you can, to get an accurate depiction of the isotopic values?

A. Well, what you're trying to do is, if a contribution from something other than a

sample, you're trying to remove that from the chromatogram. You're trying to remove that from the calculation and give you the most accurate possible isotope numbers.

Q. So if you weren't happy with the background subtraction as drawn by the software, what you would do?

A. Well, what you can do, you can do a range of things. What was happening with LNDD was, they were, in essence, neutralizing various points, such as that. And then they were adding new points to where they felt the data should best fit.

Again, I'm doing a rather extreme example here. So you see the baseline is clearly not right. I have to say, it's clearly not right. It's just a demonstration to show that baseline has now changed. If you go back and reprocess it and watch this number, you see it changes hugely. That's going from minus 19 to minus 33. And you can do it in any direction, so it's not just simply it goes more negative.

If I just exclude that point there, just zoom in down here, a point there, and then

calculate, reanalyze, so you've gone from a minus 30 to a minus 8. And I can play around with this all day, and I could pretty much give you any number between plus or minus 50 that you wanted.

Q. So just so I can understand, you are putting points in, and then, like this -- I missed that one -- like that, and that, and then the software is just going to draw a line through the points?

A. Correct, yeah. The software -- although you are picking the points, the software does plot the line.

Q. And when you were at LNDD, you saw them going through this process of adding points and taking points away for background subtraction?

A. I did.

MR. BARNETT: Objection just to the extent that this process referred to the hypothetical extreme, not right process, that he just went through on the computer.

A. I quite agree. What I am doing here is showing the extremes. But if I can just demonstrate again. But even without using

significant extreme values, I can even take something which is not really that far off. Again, we see a shift there of, that's part of 10, and if we zoom out, which is not probably too good of an example -- I do beg your indulgence. Sometimes these things do take a while to get correct.

Let's try again. That's not quite such a big shift. Depending on how you zoom in, depends on how bad it looks. If we zoom in like this, that looks awful. If we zoom in just on the individual peak, it really doesn't look quite so bad.

So, actually, determining how ridiculous the data point you select is, is very difficult, and I don't know how you do that. Is that a ridiculous data point? I don't know. I think most people probably say yes; in this particular example, it's a flat chromatogram. But if you were to look at the electronic data files from Mr. Landis' sample, the background's all over the place.

So, actually, subjectively interpreting where to put those points is very, very difficult, and I don't know how to do it.

And I certainly don't think the technicians at LNDD know how to do it. But we have seen the massively fluctuating numbers we get just from moving the points even a short distance. You know, we can have no confidence that the numbers are right. In essence, what we're looking at is a very expensive, rather large random number generator.

Q. Now, just so I can be clear, if I actually wanted to document what I was doing so that people could go back and check it, when you add or subtract these points, you can save it, right?

A. Absolutely. As I have demonstrated, just simply save parameters: "Are you sure you wish to save parameters? Previous parameter file will be overwritten." Okay. That is now saved.

Q. And if you wanted to print it now, you could do that too, right?

A. Yup. Just report results, and it prints.

Q. But from what you observed what LNDD did, if I understand, is, after they went through this entire process, they then print it,

right?

A. That's correct, yes.

Q. But they still didn't save it, did they?

A. No. And actually, in the SOP, interestingly enough, it describes how you should write the results into a document which is held on the computer, and then print the results. But print the results and not save file. It actually actively says you should not save the file. That's not the data, by the way; that's not the manipulation of the data here. It's simply an Excel or a Word document. I can't tell from the SOP exactly what it is.

Q. And just so I can be clear, can you show me how hard it is to save a change like that again?

A. Yes. Again, file, save parameters. Okay.

MR. JACOBS: Thank you. I have no further questions.

MR. BRUNET: Thank you.

Mr. Young.

MR. YOUNG: You can turn off your computer and go back.

EXAMINATION

BY MR. YOUNG:

Q. This has been marked as an exhibit, but just as a convenience, so you don't have to...

Dr. Davis, let's spend a little bit of time talking about your resume. As I look at your education, it says Liverpool JMU in association with Cambridge University.

A. That's correct, yes.

Q. You never got a degree from Cambridge?

A. I did not get a degree from Cambridge. It was solely from John Moores University, that's correct.

Q. And you were never a student at Cambridge?

A. Sorry?

Q. You were not a student at Cambridge?

A. I was not a student at Cambridge. I had two supervisors: one, who was a resident at

Liverpool; one that was resident at Cambridge. My major supervisor was at Liverpool. And Charlie Ellington at Cambridge was not my major

supervisor. My degree was solely at Cambridge -- I'm sorry -- solely at Liverpool. This is simply what's written on my degree certificate, so ...

Q. Okay. If you look at the second page, it says you were a staff scientist at the Berkeley National Laboratory?

A. Yes.

Q. That wasn't your title, was it?

A. That was my title when I left.

Q. And had that changed? Tell me when it was your title.

A. Sorry?

Q. When did that become your title?

A. I couldn't tell you off the top of my head.

Q. You weren't -- is there a difference between a staff scientist and a postdoctoral fellow?

A. I'm not sure there is a postdoctoral fellow, actually, at Berkeley.

Q. Okay. Let me show you another resume of yours.

MR. YOUNG: I guess we need to mark this. Jenny, what number would this be, 130?

MS. SLOAN: 130.

Q. So instead of staff scientist, this resume says you were a postdoctoral fellow?

A. Correct.

Q. So now do you know that there is such a thing as a postdoctoral fellow at Lawrence Berkeley?

A. I believe this is simply my description of the post. I'm not sure -- I'm not entirely sure of exactly what the specific title of that position was.

Q. Okay. I have looked through your publication and paper list, and would it be a fair summary to say that you've only had two peer-reviewed articles published, one in 2001 on soil gases, and another in 1996 on bumblebees?

A. I think that's probably correct. There's actually another paper that is coming into press, but I'm not an academic. My job is not to publish papers.

Q. Although, when you look at your resume on the bottom of the second page under Queen's University in the two-year period you worked there, you said one of your jobs, on the second line, was to publish papers.

A. Correct.

Q. And you didn't publish any papers in that two-year period?

A. I have papers coming out.

MR. YOUNG: Do you have the picture of the magnet?

MR. BARNETT: Our copy just wasn't clear.

MR. YOUNG: The Panel's copy --

MR. SCOTT: If we can have control of the slide, we will put it up.

MR. YOUNG: Sure, sure thing.

MR. PADILLA: 734.

Q. (By Mr. Young) Okay. When you talked about this picture of the magnet with the handles, you said something about putting your hand over your heart and not being able to say that that affected the results?

A. I don't know if I said exactly that. I said I couldn't say what the effect would be, and I stand by that.

Q. What results are you talking about?

A. Any results that were produced on that machine.

Q. Okay.

A. This machine was not -- I think your point would probably be -- this machine was not the machine used for the Stage 17 Sample under which Mr. Floyd -- Mr. Landis is accused of taking drugs. But my point is not so much this would have changed the results of Mr. Landis' case, but it shows a complete lack of understanding of the instrument to allow those to still be there.

Q. And what I wanted to make clear, because it wasn't clear from what you said yesterday, is, this has nothing to do with the IsoPrime 1 that the Stage 17 results were analyzed on.

A. It has nothing physically to do with it, but it does have implications as to the knowledge and understanding of LNDD staff as to the processes of the isotope machine and the application and use of the isotope machine.

Q. Okay. When -- let's talk about the reprocessing of samples that took place in early May. Okay?

Who was there?

A. Myself; Mr. Paul Scott, sitting over there; Mr. Dan Dunn sat next to me.

Q. No. This is in May. This is in May with Dr. Botré.

A. Oh, I apologize.

Q. Start again.

A. It was myself; Dr. Botré; Janine

Jumeau, sitting over there; and, next to her, Dr. Brenna.

Q. And Dr. Botré was in charge of the process?

A. Dr. Botré was in charge, yes, that's correct.

Q. And when you were there, you had access to a variety of different information.

A. That's true, yes.

Q. For example, you had the original electronic data files.

A. I never had the electronic data files; I was not supposed to touch them.

Q. Let me finish. And if you don't understand the question, you can ask me. Okay?

A. Okay.

Q. You had the electronic data files for the Stage 17 A and B Samples?

A. I did not have them.

Q. Dr. Botré had them.

A. Dr. Botré had them, yes.

Q. Okay. Dr. Botré also had the electronic data files for the ten samples that were analyzed in April?

A. That's correct.

Q. And you also asked for, and received, a log of samples that were processed -- and Dr. Botré received -- a log of samples that were processed in that April period.

A. That's correct.

Q. In connection with that reprocessing of data, was there anything that you asked Dr. Botré to do that he was unwilling to do?

A. No. Dr. Botré was a gentleman and professional. It was a pleasure meeting him.

Q. Was there anything that Dr. Botré asked the Paris laboratory technicians to do that they didn't do?

A. No.

Q. And so, for example, you've talked about the ability to save the changes that were made by adjusting baseline and peak starts and stops?

A. Correct.

Q. During the reprocessing, they did

adjust baselines and peak starts and stops, right?

A. Yes.

Q. And you never asked them to save those changes that they made, did you?

A. That was not part of my request. The reason for the initial reprocessing was on Dr. Botré's request to ensure that we had the original data from the -- from the original analysis because we'd not been able to view the data being taken off the computer, because the computer hard disk could be removed and erased prior to its arriving at the laboratory. So this was purely a procedure that was instilled by Dr. Botré and carried out. I was simply observing that.

Q. So you didn't care whether they reprocessed the original data or not; is that what you are telling us?

A. Well, I have -- I assumed they had kept records of the original data; and I assumed that, when it was reprocessed, we would see identical numbers. And to be quite honest, I was just completely flabbergasted when I saw that they were reprocessing it manually and

without keeping records at all. I was astounded.

Q. And if you wanted records of those reprocessings when they were doing it in front of you, you could have asked them to push the button, and you didn't.

A. I didn't see any need to. I saw all I actually required. If they didn't know how to save it, it wasn't my job to tell them.

Q. And for the samples that were analyzed in April, you had the opportunity to go in and look at the electronic data of that, right?

A. Sorry. These are the second B

samples where the A samples haven't been run; is that correct?

Q. That's correct.

A. I did, yes.

Q. With respect to the Stage 17 Samples on the OS/2, or the April samples through Dr. Botré, you could have asked that the data be blown up as a group or blown up on any particular page?

A. Absolutely, yes, I could.

Q. Or screen shots taken?

A. I -- I had free access, and Dr. Botré even kindly offered to miss his daughter's birthday the following day to stay on. But I think I should just clearly point out that --

Q. Is this in response --

A. This is in response to your question, yes. I had the ability to do that, but what you have to remember, every data file has over 100,000 data points and has multiple manipulations that can be carried out. To take a screen shot of every peak and every bit of matrix interference would have been impossible. There were over 1.4 million data points in the samples that were run.

So, it just would not be feasible to take every possible data shot to allow somebody else to come back and reprocess that data or look at the ability or the effect of the chromatography on that data. It simply would not be possible.

Q. It's not impossible to do a blowup of the m/z screen on all of them, right, because we have seen it done?

A. I actually have a file, an Excel file, on my computer, which I'd like to show

you, with the actual raw data from another positive from another laboratory, and I can show you how much data there simply is. And all those screen shots are is a representation of those data points. It is not possible to zoom into every single possible matrix interference or every possible peak. It simply is not. I'd still be there doing it now. I'd still be doing it now.

It's burdensome and unreasonable to expect me to have taken every single data point and printed it out in a fashion which I could have brought here and allow somebody to reprocess.

Q. We have talked about, what, at most ten different chromatograms in the course of this proceeding?

A. Mm-hm. Yes.

Q. You had the documentation package for half a year?

A. (Nod of head.)

Q. You didn't ask for one chromatogram, not only one, to be blown up, did you?

A. I asked for the electronic data files.

Q. And you got to see the electronic data files --

A. We got to see them.

Q. May I finish? You got to see the electronic data files with Dr. Botré, and he let you do anything you wanted with them in terms of how they were processed and how they were copied; is that correct?

A. Correct.

Q. So that we're clear, when you look at the electronic data files, would it be fair to characterize that as a snapshot of the original data before any manual integration, before any peak selection?

A. The electronic data files are -- cannot be changed, so they are a true representation of the initial acquisition of the data.

Q. And so when you run the electronic data files with automatic background select, that takes out any consideration of adjusting the baseline with points --

A. That's correct.

Q. -- or peak starts and stop?

A. That's correct.

Q. And you were the one that asked for that to be done, right?

A. Correct.

Q. And when you did that adjustment --

A. Sorry.

Q. When you had them run the program without any manual adjustment whatsoever, the 5-alpha, the pdiol, stayed positive, right?

A. No. I don't even believe they're the right peaks, let alone the right numbers. And the background -- we have background integrations on the automatic reprocessing, everybody will agree, is completely wrong. So those numbers are irrelevant.

Q. So they should have changed the background?

A. They should have --

Q. And they should have done peak starts, stops?

A. No. What they should have done is improve the chromatography so the software was capable of integrating in the correct manner; or they should use a different piece -- a more modern different piece of software, so they could have produced the correct numbers without having to do any minor integration.

Q. Well, and that's what you said in your sworn statement to this Panel, isn't it? Didn't you say, in your sworn statement to this Panel -- and I'll direct your attention to Page 6, subparagraph E.

In here you are talking about why it is that the electronic data files should be reprocessed on MicroMass software, and you say it would provide better peak detection, right?

A. I'm not -- sorry. Just a second.

Q. Let's take a step back. I mean, look at the last page of this document.

A. Yes.

Q. Okay. That's your signature?

A. That's my signature, yes.

Q. And you signed it on February 13th under penalty of perjury.

A. Yup.

Q. And did you read this before you signed it?

A. Yes.

Q. Okay. Now go to Page 6, subsection E.

A. I'm just -- what I'm trying to work

out is whether it actually states what -- what

I'm indicating here is that if the newer software were used in the original case, then yes, it would have provided better numbers. I don't quite see where it says if we reprocessed it on the new software. I don't see that.

Q. You didn't understand --

A. I just haven't read this in a while.

Q. Take your time and familiarize yourself.

A. Okay. I shall do that.

(Witness complies.)

Q. All right. Have you had a chance to familiarize yourself with this?

A. One second. This was --

Q. I don't want to ask you questions until you're ready. Are you ready?

A. I will tell you when I'm ready.

Yes, what I'm stating here --

Q. Let me ask you the question, and then you can answer.

A. Okay.

Q. You had requested that the electronic data files be reproduced on MassLynx software.

A. I had, yes.

Q. And --

A. That's not what this refers to, though.

Q. You are saying that your statement that --

A. No, what I'm saying here is that I'm stating that if the software -- if the analysis was originally done on the newer software, we would get different results. That's what I'm stating.

Q. Well, take a look on Page 5, then, three little i's.

For instance, if the software is reprocessed with different integration parameters, this would be recorded in all MassLynx and Ion Vantage systems but not OS/2 systems - --

A. 5iii? Sorry. Page 5iii?

Q. Yes. Three little iii's, second paragraph, where you are talking about reprocessing on MassLynx or the Ion Vantage system.

A. The new software traces any changes that are made to the data, post acquisition; for

instance, if the software is reprocessed with different integration, this would be recorded on the MassLynx Ion Vantage systems but not in the OS/2, yes.

Q. And then when you are talking if the new software were used -- and you're talking about MassLynx, right?

A. Yeah, I did.

Q. -- it would provide better peak detection --

A. Yes.

Q. -- tested and documented background subtraction routines, and would remove any errors in the head amplifier firmware.

A. Yes.

MR. YOUNG: I have no further questions.

MR. BRUNET: Thank you.

EXAMINATION

BY MR. JACOBS:

Q. Dr. Davis, can you explain why simply reprocessing alone on new software does not necessarily give accurate results?

A. Certainly. Can I pull up the reprocessed data files from when Dr. Botré was

present, the screen shots from the MassLynx files, if possible?

MR. SCOTT: Yes. But that's a lot of documents.

Q. That's a whole notebook.

A. If you have just got the doc pack with the actual reprocessed data. It's in the back of that.

MR. SCOTT: I think we'll pick one at random here and see if this is what you are looking for. Is this what you are looking for?

THE WITNESS: No, I'm actually looking for the screen shots of the files used when the -- when the OS/2 data was converted and reprocessed through to MassLynx.

MR. SCOTT: You want the directory tree?

THE WITNESS: No. That's right, the directory screen shot, that's correct. There was two. Excuse me.

MR. SCOTT: Do you recall when Dr. Botré sent these if they were at the beginning or the end?

THE WITNESS: They were at the very end --

MR. SCOTT: They're at the very end.

THE WITNESS: -- right after the MassLynx data.

MR. SCOTT: Dr. Davis, is that what you are looking for?

THE WITNESS: Yes. There's another one, a before-and-after shot. There's that one, and there's one another.

MR. BRUNET: Dr. Botré points us to Page 150.

DR. BOTRÉ: I thought they were looking for the symbol data. This is just the same at 185 and 186 of the original numbering.

THE WITNESS: That's correct, yeah.
I've got 186 here.

MR. BRUNET: Which document?

MR. MC LAREN: What have you got on
the screen?

MR. SCOTT: This is GDC, and this is
1054.

THE WITNESS: Page 185 is missing.
Page 185 is missing. It's Page 186, and so I
think that's Page 185 on the screen there.

MR. SCOTT: It is.

Q. (By Mr. Jacobs) And so to identify

for the record, we would be looking at GDC 1055
and --

THE WITNESS: Both of these packs,
the page is missing?

MR. SCOTT: GDC 1054.

THE WITNESS: GDC 01054 and GDC
01055.

MR. CAMPBELL: We're missing 1054.

MR. JACOBS: Do we have that?

MR. SCOTT: Apparently it's not --
it's on the computer. We are having it sent and
printed right now. So it must have been --

THE WITNESS: I can make my answer
from what's on the screen.

MR. SCOTT: We will get copies for
everyone as well.

MR. MC LAREN: Can you tell us what is on the screen?

THE WITNESS: Do you want me to describe it?

MR. JACOBS: Yes, yes.

MR. MC LAREN: We want the GDC numbers.

MR. JACOBS: 1054 and 1055.

MR. SCOTT: But apparently, when the

books were produced, 1054 was not in it, so we're having that printed right now for everyone.

MR. MC LAREN: 1054 and 1055 are missing.

MR. BRUNET: 1055 is here.

We have 1055.

MR. MC LAREN: You do; I don't. And no 1056.

MR. SCOTT: You need 1055 as well?

MR. MC LAREN: No. I -- sorry. I need 1055 as well, yes.

MR. SCOTT: Okay. Thank you. Sorry about that. We'll get that printed right quick.

Q. (By Mr. Jacobs) Okay?

A. Okay. You get it?

Q. Unless you want to wait until you get it.

MR. BRUNET: Well, I think

Mr. McLaren still wants to know what he's looking at.

MR. JACOBS: If you'll give us two minutes, we'll go grab them.

MR. SCOTT: I'll be right back.

MR. JACOBS: I can ask him other

questions, and we can come back to this.

MR. BRUNET: Okay.

Q. (By Mr. Jacobs) Now, Dr. Davis, you were not present in July or August of 2006 when the samples were originally run on Stage 17 at LNDD, right?

A. That's correct.

Q. So do you have any way of knowing exactly what they did as far as the processing of the data back in July and August of 2006?

A. Not only do I not have any idea, the lab technicians before the analysis also have no idea what they did.

Q. But you do know that when you were there in April or May of this year, when they did the reprocessing, the numbers came up different, right?

A. Absolutely, yeah.

Q. I should have spoken slower, because now all I'm doing is waiting on that --

MR. BARNETT: Do you want me to give you some questions?

MR. CAMPBELL: I have a question.

MR. JACOBS: Good. Good.

EXAMINATION

BY MR. CAMPBELL:

Q. I -- Dr. Davis, I think I read in one of the declarations, and I don't know if that was you or Mr. Scott, but there was a conversation that was had with Dr. Aguilera regarding linearity --

A. Correct.

Q. -- and the fact that Dr. Aguilera said linearity runs should be done before each sample was tested?

A. I'm not sure that's quite correct.

Q. Yeah, I'd like that conversation clarified.

A. The conversation was that I'd requested to see linearity runs done before each analysis, and that originally was agreed with Mr. Dunn and Mr. Aguilera. That was then retracted, and then, during the conversation about whether we should be allowed to see that or not, I asked Mr. Aguilera whether he felt it was an unreasonable request on my part. And he fell silent for a bit, and then he said, No comment. And that was the end of the conversation.

And we were not allowed to see any linearity runs before that at all, and I did repeat the requests before that. I've not seen a single linearity run performed at the laboratory, despite multiple requests; that was denied.

MR. SCOTT: Unfortunately, because the OS/2 crashes without a printer, our printer is connected to this machine, and so until we take a break, we're not going to be able to print out those things.

MR. BARNETT: Would it be possible to have him testify without the document?

MR. JACOBS: We'd be happy to do it.

MR. YOUNG: We can put it up on the screen.

MR. JACOBS: If it's okay with the Panel.

MR. CAMPBELL: You can put it up on the screen?

MR. JACOBS: Yeah.

MR. BRUNET: Just put it up on the screen.

MR. JACOBS: Okay.

THE WITNESS: Okay. What we're

looking at is two screen shots from the MassLynx computer. Just to give you some brief history, what happened was, we took the OS/2 data, and there is a piece of software in MassLynx called "data bridge" which allows you to convert the OS/2 raw data format into a MassLynx raw data format.

Now, the reason why this is present in the software is because when we were developing the peak integration and the background subtraction routines for MassLynx, we were unable to compare its performance to OS/2 because -- I think as I mentioned before -- we lost all the documentation relating to those algorithms. And as such, we developed this piece of software so that we could see how lines and peaks start and fit with the format.

Now, unfortunately, when we did it, we did it in a bit of a rush, and we never quite completed it. So the conversion from OS/2 to MassLynx is only a partial conversion, and what we then have to do is, we then have to take files from other MassLynx samples, and this was seen by Dr. Botré, and we have to copy parameter files, methods files, integration files, and

whole series of other documentation, including the results files from other MassLynx samples, and merge them with the OS/2 converted data, as we see here. This is the original. This is what we got after the conversion from OS/2, and this is what we -- these are all the extra files and the original files we had to add to the OS/2 data in order to produce a valid result within MassLynx.

Now, the problem with that is, yes, it allows us to look at the backgrounds; yes, it allows us to look at the peak integrations. The actual numbers that are produced from that sample are completely meaningless. They do not confer anything and cannot be used to infer regarding the isotopic values.

Another problem is that the OS/2 data is 16 bit, and the MassLynx data is 20 bit, so the systems are actually incompatible.

I wanted to view this process in order that I could show that the integra- -- that the peak integration and the background subtraction routines worked almost seamlessly on the MassLynx and in an automated fashion; yet, on the OS/2, they only worked in a manual

fashion.

So, I've been questioned somewhat about what I've requested as far as when the integrations occurred in France. And if I might beg your indulgence, I'd just like to give some of my thinking behind why I requested what I did request.

Now obviously, initially, before I

went in, I did not know what I was going to find. Because I'd never seen the electronic data files previously.

So, therefore, I took somewhat of a shotgun approach, and I asked for the possibility to do various forms of integration analysis, which I probably wouldn't have needed to have actually done. It was a bit of a shotgun approach; I freely admit that. But under the circumstance, if I hadn't asked for them, and I had gone in and I found something, which I then needed to do, it would have meant going back to the Panel and wasting your time, my time, and Dr. Botré's time.

So I took this approach, and I think that Dr. Botré will confirm, when I got there, a lot of what I requested I said I didn't need,

and we did not proceed with.

Now, as far as what I did ask for and did push for, initially when we got there, I wished to see the raw integration, so I wanted to see how the peak start and the peak end was determined without any correction factors whatsoever, so I had the baseline from which to draw any conclusions.

I then asked to see the automated background subtraction, so I could see for myself the background subtractions were not being fitted properly by the software. And then I wished to see the manual reintegration process where the laboratory technicians tried to correct for the poor integration through the OS/2.

Then I wished to convert the OS/2 through to MassLynx, so I could demonstrate at a later date that MassLynx was capable of putting these background subtractions in, even though the numbers which we derived from it, the isotopes which we derived from it, are meaningless. This was simply an attempt to show how more modern software -- and that's what I'm discussing in my document. I'm not saying that

the numbers that come out from this MassLynx reprocessing in any way are better than that for OS/2 or in any way should be used for the prosecution for Mr. Landis' case. I'm definitely not saying that. And that is why I was so carefully reading my words before I answered the question. I just wanted to make that clear.

EXAMINATION (cont'd.)

BY MR. JACOBS:

Q. And the reprocessing of the data from Stage 17 on MassLynx, did it tell you anything about the way the background subtraction was done originally on OS/2?

A. Well, it told me that it wasn't fit for purpose, as Christiane Ayotte would say. I mean, it showed -- again, we don't know how the background subtraction works. What we have seen throughout this case, we have seen people coming in, and saying, yes, this chromatogram is good enough; yes, this chromatogram is good enough.

But the question they should be asking is good enough for what? Is it good enough for reprocessing OS/2? And the fact is, it's not. It's clearly not, because every

single sample had to be manually reintegrated, had to be manually reintegrated. No record was kept of what they did, and we have seen even the most careful user can make a slip-up, and you can get massively different numbers, massively different numbers.

And even a careful user will still get significantly different numbers, and that's the key to this. This software, while the chromatograms might be good enough for MassLynx, for some of Mr. Brenna's excellent software, Mr. Brenna's excellent software, it is not good enough for OS/2. OS/2 is 15 years old, 15 years old. And although it was brilliant at its time, it's not good enough for this application. It's as simple as that.

MR. JACOBS: Thank you. No further

questions.

MR. YOUNG: No questions.

No questions.

MR. BRUNET: Mr. McLaren has a question.

EXAMINATION

BY MR. MC LAREN:

Q. Dr. Davis, do I understand that MassLynx software is the state-of-the-art software now?

A. I wouldn't claim that. It's certainly an up-to-date software. I don't use it for some quite ingenious background subtraction routines, but there are --

Q. There are other products on the market, is that it?

A. Yeah, there's a -- Dr. Brenna has a product -- well, I'm sorry, it's not a product -- Dr. Brenna has developed a software called is it SAXICAB? SAXICAB, which is an excellent piece of software. There's a thermo type of product called ISODAT, ISODAT 2, which is also an excellent product. MassLynx is an excellent product.

I could push my own product, but I

won't. We have a software called MAPS, which would be probably capable of integrating that stuff. But it's just a development through time; things have developed.

Q. So MassLynx is one of several of

the state-of-the-art at the moment?

A. Sir, quite fine; perfectly fine piece of software.

MR. MC LAREN: Could somebody put up for me GDC 1350.

Thank you.

Q. (By Mr. McLaren) If you would just look at that for a moment, and look at the original result runs and the values, and then go -- that's the first column. This would be a sample taken last summer?

A. Yeah.

Q. And then look at the MassLynx, which is the last column.

A. Yeah.

Q. The values are very similar; they're not identical. Why is that?

A. Because -- because there's only so many ways -- that's probably a bad description. They're similar because -- well, they're actually not that similar. They're actually quite different in isotopic terms. I mean, I'm not saying OS/2 is completely out in the sky. I mean, there will be some relationship to reality, but it is not exact, and we can't be

confident. I mean, there is certainly a difference. I don't know how a difference is created; I don't know how reliable that difference is. There'll be errors in MassLynx and OS/2 as well.

But the fundamental thing is, there's uncertainty. We have uncertainty between the original numbers and the MassLynx numbers; and because we have no audit trail and we have no knowledge of what OS/2 actually does, we can have no confidence that these are, in fact, real numbers. And there are -- there are quite a few significant changes there.

Q. Can you point out those significant changes?

A. Well, I mean, you've got .8 per mil there.

Q. You are looking at the blanks. I was looking at the A Sample.

A. Oh, sorry. Well, it's the same principle. I mean, you've got -- here we have a difference of 6 per mil.

We have a half a per mil difference here, .4 per mil difference here. I spot a .1 per mil difference on the 5-alpha. A .5 per mil difference, approximately, on the 5-beta. And again, probably .4 per mil difference there. It depends what you are -- what your description of significant is. And on the blanks, I mean, again, they're the same process. There is a difference.

MR. MC LAREN: Thank you.

MR. BRUNET: Dr. Davis, I have a question.

Just to clear up -- clear up your commercial interest in the software, so you have developed a software?

THE WITNESS: We have developed a software, yes.

MR. BRUNET: Which is called?

THE WITNESS: MAPS, mass analyzer probe.

MR. BRUNET: And do you have any commercial interest in the MassLynx software?

THE WITNESS: We don't, no.

MR. BRUNET: Okay. Thank you.

MR. JACOBS: No further questions.

MR. YOUNG: Okay.

MR. BRUNET: Thank you, Dr. Davis.

We'll recess for 15 minutes.

(Brief recess taken from 10:48 a.m.

to 11:12 a.m.)

MR. BRUNET: Welcome back, everyone.

I made a terrible mistake this morning. I forgot to state -- to congratulate the Mighty Ducks for their win yesterday. They made it to the finals in the Stanley Cup. So congratulations to the Ducks.

We're back.

Mr. Young. Do you have any rebuttal witnesses?

MR. YOUNG: I do. First, we would like to make sure that Dr. Davis' resume is in as an exhibit. We have marked it as 131.

MR. BRUNET: It was already in.

MR. YOUNG: I'm sorry. I'm reading the wrong document. Sorry. It's not his resume. It's his declaration that he filed with the discovery brief is 131.

Sorry.

And we have one rebuttal witness, and that will be Dr. Tom Brenna.

WHEREUPON,

J. THOMAS BRENNA, Ph.D.,

the witness herein, having been recalled to

state the whole truth, testified on his oath as follows:

EXAMINATION

BY MR. YOUNG:

Q. Dr. Brenna, we heard Dr. Meier-Augenstein say the other day that the only way that he could identify the internal standard was through divine intervention.

Do you have any problem locating --

MR. SUH: Objection. That misstates the testimony.

Q. Well, we'll let -- I know he made the comment about divine intervention. And I know he made the comment in connection with internal standards, but the Panel will have the record to see what it says.

I can ask the question in another way.

Did you have any problem identifying the internal standard in the samples and chromatograms of Respondent?

A. No, not at all.

Q. And how did you know where it was?

A. Well, I have to take you through some of the documentation.

Q. For the Panel's convenience, we're going to do the same thing that Respondent did yesterday, which I found helpful. Rather than have you flip through documents --

A. While he's passing that out, I would like to say the only symbolism in this yellow tie is that my daughters picked it out.

Q. Okay. How is it that you are able to identify the internal standard in these chromatograms?

A. Well, let me take you through them. The top sheet, which is labeled USADA 182, is the first run of mix cal acetate from the A samples. And on that sheet, we have four peaks, and we know the identity of those four peaks because we have constructed that standard, as a synthetic standard. That's been set previously; I don't think there's any disagreement on that. And we know the identities of those four peaks in various chemical ways that I could give a lecture on, but I'll spare us.

We know the internal standard, actually, is located, elutes, as the first peak of those four. And so, if we flip the page to USADA 181, and then we look at the list of

numbers, the sort of two-dimensional matrix of numbers at the bottom --

Q. Let me give you --

A. Yeah.

If we look at the -- this is the result of the data reduction down here. And we're going to look at just this region here. We're going to blow up the time. The software has been set or, I should say, the parameters for data reduction has been set so that the software detects four peaks.

And the first number that is reported for these peaks is the retention time, and those are listed here. And we know what those four peaks are, again, because this is the standard and we have previously analyzed that.

And we know the first peak is our alpha-androstenol, and so it elutes, or its retention time is 866.6 seconds. So we have now established that with our standard, and that's -- that's the way it's done.

Now, if we skip ahead to USADA 184, the next page, we see the mix cal acetate that was run at the end of the A samples, so all the A samples, the blank urines and the athlete's

samples, all six of them were run in the middle. And we have heard a lot about intervening time, so whatever intervening time there was, was also -- also took place. And so, once again, we see what looks like an identical chromatogram, and there is the alpha-androstenol, which is the first peak.

If we now flip to the next page, USADA 183, and we focus in on the retention times again. Right there, yeah. We see the four retention times again, and, as it happens, the retention time, after some number of hours for that first peak, is again, 466.6. So it's identical.

Q. 866 --

A. I'm sorry. I'm sorry. 866.6. It's identical. It's not actually identical, because it's rounded up, but at least to -- to what we call four significant figures, four digits, it's identical.

So that gives us some confidence that this peak is going to come around 466, so I'll round that to 467.

Q. 466 or --

A. Oh, I'm sorry. I'm sorry. I keep

saying 4. I apologize. 866, so we'll round that to 867.

So now we'll skip over to the samples. We're now at USADA 158. And we should go now to 1- -- well, we see the chromatogram here, and we can now go to the next page, which is USADA 157, and we can blow up that time region again.

And so I look at those four peaks, and I ask myself, which one is closest to 866.6, and I see one at 867. And I know from my experience that 867 is the closest peak to 866.6 and that that is very much within experimental error, and it's a lot closer than 1473 or 1763 or 1826, and so I choose that one. And I believe that that is the internal standard, and that's how I identify the internal standard in this chromatogram.

Now, I'll take you through the rest of them, because there's not that many, and we should -- we should look at them.

So we flip to the next page, USADA 164. And we now have a chromatogram, same chromat- -- a chromatogram. And without blowing that up, we'll now flip again to USADA 163, and

we'll blow up those retention times again for the peaks that were detected and look for a peak which is -- has a retention time around 867 or so, and what do we find? 868. Okay. So that one is the internal standard in this chromatogram.

Now, let's go through the next one. This one is the F3 fraction from the blank urine, and it will be up in a moment. And this one is a bit more complex and congested.

Q. Let's wait until it's up.

A. Okay.

MR. PADILLA: What's the page?

A. 170. I'm sorry.

And this one is a bit more congested in the region of the internal standard. But if we then jump ahead to the data reduction on Page USADA 169. And we look at that list, and we ask ourselves, Do we see a peak going off at around

867? I pick that one at 867.4, and I don't pick any of the others, so that one's the internal standard.

MR. BRUNET: Dr. Brenna, what is the internal standard by which you would disqualify that spread? You're referring to 866. What if

it was 890?

A. May I wait to answer your question until we're through with this, and then I will certainly address that --

MR. BRUNET: Thank you.

A. But with a slide.

MR. BRUNET: Thank you.

A. Okay. And then let's go to -- USADA 161 is next, yeah. Okay. And so this is F1. Okay? And again, a chromatogram, and it's probably not that important to continue to look at the chromatograms; it's probably more important to look at the data reductions, so we'll go to USADA 160.

And that was a timely question, because when we look here, we see 867. And we see another one that's sort of close by, 881.6. But if you think of the consistency that we had seen among these chromatograms, we have seen nothing that's very far away from 867 -- very far away being a second or so -- and so this one is a long distance away. But I'll show you summary data at the end to support that contention.

Okay. Keep going. USADA 167, a

chromatogram. And the data reduction associated with that is at USADA 166, and once again, if we're looking for a peak that's close, and there's Page 66, so that's the internal standard.

And let's see. Yes, we will continue. USADA 173, another chromatogram, F3 sample. We turn the page, USADA 172. Again, look at the retention times, and we find 867.4. That's the internal standard. And quite far away from the -- from that in time are other peaks.

Okay? Now, we're going to -- Okay. Let's just go to the next one that's in our packet here, USADA 361. And here we have another mix cal acetate, and again, we see four peaks. We know the first peak --

Q. Now, have we moved into the B Sample?

A. We have. I was going to be a little more mysterious -- or let us observe that.

We have a -- we have our peak right there. When we go to the next page, which is in our packet, is USADA 360. And we look at those retention times, and we're looking for a peak at

867, but now what we find is a peak at 870.6. That is a greater distance in time, in retention time, than we have been used to seeing in the previous samples, and, as we have just said, this is now the B Sample, which has been run a month later. And now the retention time under those conditions of the machine at this time is a little bit different, but not very much different. It's about three seconds different, so there's our 870.6, so let's press on.

Q. And if that -- and if the time was a couple weeks -- inside a couple weeks, would that make any difference?

A. It might make some difference, but clearly it's making a small difference. At least in the data that we're looking at here.

Q. Okay.

A. Okay. The next one is USADA 363, and this is the mix cal acetate that was run at the end of the B samples, again, several hours after the mix cal acetate's run at the -- the mix cal acetate run at the beginning. And if we then go to USADA 362, and we blow that up, we suspect now we're no longer looking for 867. We're now looking for 870.6. We now have 870.5, so that's several hours later on the same day, and we find the internal standard at 870 again.

So now let's look at the samples that were run in between those two, the B samples. We have USADA 333, chromatogram, and I'm going to move through these chromatograms a little more quickly now because I think that point was made.

USADA 335. 335, good. Three peaks. We're looking for one for 870, and we find one at 869.6. Okay? So we found that internal standard.

Can we just skip ahead for a moment?

Q. Sure.

A. We'll skip the chromatograms in the interest of time, and go directly to USADA 341. And blow up the retention times. And in USADA 341, we find a peak at 869. That's the internal standard here.

Again, we'll skip ahead, because we're just going through these samples, directly to USADA 347. And in USADA 347, we're looking for a peak around 870, and we find a peak at 872.4. And I will again address the adjacencies at the end, but here's one where there is one

that's sort of adjacent, and -- but I will tell you why there's an ambiguity here in a moment.

Okay, let's skip ahead to USADA 338. And again, we find a peak at 870.2, and that's our internal standard for this one. And then we'll skip ahead to USADA 344. 870.1, that's our internal standard for that chromatogram.

And it's probably worth putting up USADA 349, and you can see on that chromatogram on -- I think this -- I really don't remember if this was the one that was highlighted as being very congested, but it's reminiscent of it. And so the question was, how do you pick it out of that bunch of peaks? Is it this one? Is it this one? Is it this one?

Okay. Well, then, let's now go to our data reduction on USADA 350, USADA 350, and blow up the retention times, and look for a peak around 870, and we find 871.9. And the closest adjacent peak that's been detected by the software with the parameters that are set for detection is at 880.6, quite a ways off.

Now, I'd like to show a slide that I gave to James yesterday.

Q. Is it this one?

A. It's that one, yeah.

Q. I will give you a hard copy, and I'll give everybody else -- it's two pages?

A. No, just one page. And, in fact, that's the old one. But we can -- we can use that one, just the top one.

Can I see one?

MR. YOUNG: Are you going to put that up, James, or should I --

A. Can we show it to James? That's it. Excellent. That will do. Yep.

Okay. So what is plotted here on this plot, across the bottom are the various USADA page numbers corresponding to the data files that we have just looked at. And the internal standards are here at the end; I just did them in order for A samples and B samples. And then I plotted -- or I plotted on this access the retention times; that is, the numbers we have just been reading off. And I made the scale approximately plus and minus 5 percent. And these are -- these are the various data points for the A sample.

And if you recall, there was a little bit of a jump of about three seconds in

the B sample, and there is the consistency of the B samples. And when I calculate a mean in seconds for the A samples, I get 866.6. Interestingly enough, the same number as our mix cal acetate, plus or minus 0.07 percent. That's the spread in the retention times over an entire day running these samples.

For the B samples, 870.5, plus or

minus .13 percent; that's the spread in running the B samples.

And so that is, I hope, responsive to the question about what are acceptable spreads.

We can -- we can put percentages on it, but I think it's not necessary to be too terribly technical to recognize that a number which is many standard deviations away, such as 880, for instance, is not the internal standard.

Q. Let me ask you a question, and I'm going to -- I think the answer's obvious, but I'll -- I'm looking at the technical document.

Within the A sample run on the IRMS, do the retention times differ by more than 1 percent?

A. I don't believe so. You're asking

me about the analytes?

Q. No. Of the internal standard.

A. Well, it's written right here. It's .07 percent, so it's quite a small fraction of 1 percent.

Q. And do they vary by more than plus or minus 2-tenths of a minute?

A. No.

Q. Okay. And the same question for the B sample?

A. Same answer.

Q. Okay. Would you expect the retention times for the GC/MS instrument to be the same as the retention times for the GCC IRMS instrument?

A. I would not.

Q. Why's that?

A. A diagram would be helpful, and I asked for a diagram that we saw yesterday, if we could put it up there.

Q. Could we switch?

A. And it would be helpful if I could do a little bit of drawing up there.

MR. YOUNG: Sure. I'll get out of your way. Come on up.

MR. BRUNET: What exhibit was that again? GDC 166.

MR. YOUNG: Yes.

Do you have what you need to draw it?

A. I hope so. Okay.

Let me explain -- refresh your memory about this slide. This is a diagram of a GC combustion IRMS instrument, GC/C-IRMS instrument. And we start with a GC at this end of the instrument, and then we have a series of steps, preparation steps, prior to entering the IRMS.

And so, I'm going to draw a box here

around the GC, and the FID is part of the GC, although it's a little bit extended there, but that's okay. And so that's the GC.

Now, I want to draw a GC/MS, and that's my representation of all that's in that box right there, the GC. And then we're going to put, what we have been calling an MS next to it, which is known as the molecular mass spectrometer right next to it. And now we're going to compare the analysis which is done here in GC/C-IRMS with GC/MS.

Now, the first thing we do, as we discussed -- it was discussed a couple times -- is we inject into the GC, and we have a column, essentially a tube. It is -- you can think of it as a racetrack for molecules. So -- and the molecules move through that GC at some rate, which depends -- or which is characteristic of the molecule.

And that process is the same, GC, GC. These two are the same. Those processes are the same.

And so when a particular analyte emerges at the end of each one of these GCs, it emerges at the same time, and the relative -- excuse me -- and the retention time, at that point, were we to put a detector there, would be the same.

However, in the case of MS, the GC is connected directly to the MS, and the MS is a very fast detector. It detects essentially instantaneously, and so, when we make retention times in the GC/MS, these retention times, these times, time -- excuse me -- time, these times correspond essentially to the time that the analytes are emerging from the GC.

But that is not the case in GC/C-IRMS. In GC/C-IRMS, we have to process the sample in an automated way, in an automatic way. We first have to burn it up, as you heard, and then we have to dry it somehow. And that drying could be a cold trap as is represented here. And then there's more plumbing, which doesn't necessarily include that device, but might, and so there is plumbing here prior to the time we go into the IRMS, which also would then be essentially instantaneous detection.

And so while the retention times at the end of the GC will be the same, we are detecting instantaneously here; we are not detecting instantaneously here. We have an additional length of plumbing which adds significant time to the, what we call the retention time, to the total retention time in the system.

Now, it still could be possible --

and I'm speaking as a chemist now -- it still could be possible that the retention times might bear -- might be proportional to one another in a way, but it doesn't really work that way. Because in the GC, molecules move through the GC

at a rate which is characteristic of each individual molecule, so a molecule that moves through the GC slowly will move through it at that rate, and compared to a molecule that moves through the GC more quickly.

So, and then when it emerges into this region here, all the molecules move through this region at approximately the same rate. So there is what we call "differential retention" here, but not here, and that has implications for calculating retention times and also relative retention times.

And I think that's what I wanted to say about that.

Q. Okay. Why don't we go ahead and make this an exhibit? We can get copies. Number?

MS. SLOAN: 132.

Q. So, for example, in your laboratory, would you expect the retention times for your GC to correspond with -- your GC/MS to correspond with your GC IRMS?

A. No. And we run GC/MS every day, and

GC/C-IRMS every day, and we match our peaks every day.

Q. And how about relative retention times?

A. No, for the reasons I've outlined.

Q. Okay. Let's talk quickly about linearity. Do you believe that there's any linearity problem with the operation of this instrument during the 17th Stage?

A. I do not.

Q. And why not?

A. Well, we have looked at -- we have been provided with linearity tests in the -- I think it's --

Q. I can tell you where to find them. It's --

A. C 9?

Q. Yeah. Dr. Davis said that he hadn't seen linearity results, but take a look at Page LNDD 0312.

MR. SUH: Objection. That mischaracterizes the testimony. He said he had not seen linearity runs, not the test; the runs themselves.

MR. BRUNET: Could you -- Mr. Young?

MR. YOUNG: Yes.

MR. BRUNET: Could you reformulate

your question?

MR. YOUNG: Sure.

Q. Have you seen linearity results on this IsoPrime 1 instrument in the months of June, July and September?

A. Yes.

Q. And where are those? If you can find LNDD 0312.

A. Yes, that's where they are.

DR. BOTRÉ: The page is not the same.

A. LNDD 314. 314, for instance.

MR. BRUNET: Mr. Young, we're seeing LNDD 132 on the screen. Is it 132 or is it 314?

A. That's the linearity test.

Q. Out of -- Dr. Brenna -- out of these linearity tests that start at 312, pick one to explain what we're looking at.

A. Okay.

Q. Is this a good representative?

A. The one that's up there's fine, yeah.

Okay. So -- I'll wait for the Panel.

MR. CAMPBELL: LNDD what?

Q. And could you go to the page?

MR. BARNETT: It's 0314, Mr. Campbell.

MR. BRUNET: We have it.

Q. Okay.

A. Okay. Shall I?

Q. Yeah, tell us, what are we looking at.

A. Okay. So the question -- and I'll just repeat what's been said about linearity is, we're interested in knowing that we get an isotope ratio that is accurate, it is the same, at -- for small peaks or small signal sizes -- it's actually a distinction -- and large signal sizes.

And so the protocol used for this instrument to test linearity is, as again what's described, is to fill a volume with CO2 gas. It's like a balloon, in a way, a stainless steel balloon. And it can be compressed or expanded. When one compresses it, the pressure goes up.

And so we can adjust the amount of CO2 that enters the mass spectrometer. And so I'm pointing, now, at a first set of pulses here -- pulses, that's correct. And here is an

opening of a valve, and then a closing of a valve, and we're emitting gas right through that region there. And then we open the valve again, and close the valve, and we emit gas there, and measure it.

Then the -- it's called the bellows, the balloon -- I refer to it as a balloon, but it's called a bellows -- is compressed, and we do the same thing: Open, measure, close. Open, measure, close. And then we change the pressure again by, in this case, expanding the bellows. And then we get another level, and then we compress it. And we get another level, and then we finally expand it and get about the same level as we started with.

Q. Now, is the purpose of this to show that the instrument is giving the same value for the CO2 at this peak height as of this peak height?

A. That is the purpose. That is the purpose. So the analogy is, perhaps, is that the yardstick is accurate between, say, 6 inches and 6 feet.

Q. So how do they use this linearity data with the actual runs of the athletes'

sample on the controls? What are we looking for in the comparison?

A. We're looking to see that -- we're looking to see in the data that follows, and it would really take some time to go through it, so I'm going to summarize it.

We're looking to see that the ion

curve, that is, the raw data that we read, those ratios are very close to the same at low signal levels and at high signal levels. And when they use these data in conjunction with analysis of real samples, they would want to -- well, ideally -- not necessarily in my opinion -- but ideally would want to bracket the lowest signal they have and the highest signal, which actually, I think, is probably between these two and certainly between these two.

Q. So in other words that the samples that they're measuring would be bigger than here and smaller than here.

A. That's correct.

Q. And was that the case with the samples that were analyzed for the Stage 17?

A. Yes, it was. There's been discussion about that not being the case, but my

evaluation is to look at signal intensities. And this is the usual interpretation of the word "linear" when it comes to ion sources in IRMS.

And I can't speak to whether there was an error made elsewhere. But when I compare the intensities, the intensities, and then just looking at this level and reading off the intensity over here with the intensities that we see in the sample, I find that the intensities are all above these lower levels.

Q. Let me -- and again, if there was a linearity problem -- let me take a step back. Do you have any concern that there's a linearity problem in these results?

A. No.

Q. But if there was a linearity problem, would the problem be reflected in comparing peaks that have very different heights?

A. Yes. And could you zoom out?

Q. Even more?

A. Zoom out, so we can see the -- stop. Okay. Well, can you move it so we can see the Y-axis?

Q. I'm sorry.

A. That's fine just the way it is.

Okay. So let me point it out. We could point it out, if we wish. Let me look at it here. I'll answer your question, but I want to make a point. I already answered your question, so I get to make a point.

Okay.

The minimum peak height that we saw on the very last graphic was down here around 1.4 nanoamps, and if you read across here, you'll see that this peak, the 5-alpha, is actually considerably above that. And if I look at all the peaks, I find that all the 5-alphas are above that, which happens to be one small peaks.

Now, to be directly responsive to your question, you would expect a linearity problem to be reflected.

Q. So if you had a linearity problem --

A. If you had a linearity problem, you would expect the linearity problem to be reflected when one compares peaks of quite different sizes. And while I won't say that this is -- that this size difference is sufficient to cause such a problem, I just call

attention that these two peaks are very close in intensity and the ultimate calculation we're making is the delta/delta.

We're asking what is the difference in delta between these two peaks right here?

Q. And when you say these two?

A. 5-alpha --

Q. 5-alpha --

A. -- and pdiol.

Q. Okay. As you've sat here for eight days and listened to various comments on different chromatograms, have you heard any challenge to the mix cal acetate chromatograms for either the A or the B Sample?

MR. SUH: Objection. This is improper direct. He's just eliciting testimony that other people have testified about, which is in the record.

MR. BRUNET: Well, he's asking whether or not he's heard any testimony. He's not asking him to characterize the testimony itself.

I'll allow it.

A. Would you read back the question?

(Reporter complies.)

A. I don't recall hearing any challenges to the mix cal acetates. And I did hear a number of things that confirm my opinions, or at least were consistent with my opinions, with the quality of those results.

Q. And if the mix cal acetate is working, does that mean that the instrument is working?

A. Yes, it does. As I said -- sorry to repeat myself, but one sentence: It means that it's working well for resolved peaks.

Q. And if there was a pressure problem with the instrument that was significant enough to affect the results in an athlete's sample, would you have the kind of consistent mix cal acetate or mix cal IRMS results that you have in this case?

A. Well, the way you've asked the question is if there was a pressure problem. A pressure problem would be reflected in a diagnostic, which is used by the laboratories. The laboratories determine suitability for a particular purpose. We all know those sort of words.

And if there was a -- the thinking,

to me, is a little bit odd. I would look to the mix cal acetate, to the mix cal, and see if those results were good. If those results are not good, then something like a pressure issue or some other kind of troubleshooting issue would be something that I would look to.

Q. Let me have you explain -- and I may need to invite you back up here -- the concept of when you have two overlapping peaks. Which contributes to the other? Your paper was quoted by Dr. Meier-Augenstein, and I want to make sure we have it right.

A. So try to cut this down to essentials. Hold on.

Q. I guess we have to have a clean piece of paper, because we're going to make it an exhibit. Sorry.

A. (Witness drawing an exhibit.)

Those are two peaks that are resolved. There's a baseline. Minus 28, minus 28.

Our study, which was an experimental

study -- it was not a modeling study -- did modeling, but it started with real data and analyzed real data.

There's two overlapping peaks. Let me get this right. It showed that the direction would be the opposite of what was quoted, and our study was really quite an extensive study in this regard. And so, were there overlapping peaks, particularly in relationship to the 5-alpha, I would have expected it to rise, not fall, compared to -- as an artifact. If it were an artifact, which I don't believe it is.

Q. Okay. Thank you.

What number will this be?

MS. SLOAN: 133.

MR. YOUNG: Okay. We'll mark this as 133 and circulate it.

Q. So then, Dr. Brenna, let me take you down to just two chromatograms.

The first chromatogram --

MR. BRUNET: I have an extra one. I don't know if you're missing one.

MR. SUH: That may have been the one intended for us, because we didn't receive one.

MR. YOUNG: That would be why.

Q. The first chromatogram is the diol chromatogram for the A Sample, and the second chromatogram is the diol chromatogram for the B

Sample of the athlete's sample.

In reviewing these chromatograms and the GC chromatograms that go with them and the ion traces that go with them, do you see any issue with peak interference or other problems that would cause these results to be unreliable?

A. I do not.

Q. Dr. Davis did a quick demonstration on the software where he set the baseline by moving the X to different points, and sometimes when he did it, he got significantly different results.

Is the way he did that as a demonstration for this Panel the way you observed the technicians doing it in Paris?

A. It is not.

Q. And tell me why.

A. Would you like me to go through the process, at least briefly, that I observed?

Q. Just explain -- explain the significant differences in what Dr. Davis showed the Panel and what you saw the technicians do.

A. I saw the technicians, first of all, adjust the data, and I have consistently been calling this a quality-control step, so I'm going to call it that here.

I observed the -- their quality control closely. They first were interested not in peak starts and stops, as we started with earlier this morning, but with verifying the background was properly modeled.

Now, the Xs that you saw deleted and then moved this morning, that defined -- that were called background points are better described as reference points or anchor points.

The software requires reference points in order for it to calculate a background. And backgrounds are inherently noisy, and older algorithms, and even new algorithms, sometimes choose anchor points for calculation of background that are on peaks.

And so a part of their quality control is to ensure that the data points, 1, 2, 3, 4, approximately, as we have shown, that would be used to calculate those backgrounds were actually on background and not on peaks.

And they would choose, and they would, indeed, change -- quite often, in fact -- and update the choices of anchor points to ensure, to their satisfaction, that the

calculated background for the instrument coincided with the ratio trace that was presented on the screen.

And they did, in fact, take quite a bit of care in ensuring that. And that is -- when I asked them later -- not during that time, but later -- what they were doing, they said that is what they were doing. Okay? Hearsay, but nevertheless, that's what they told me.

Q. And is that what's in the SOP?

A. That's what's in the SOP.

Q. And when we saw Dr. Davis doing a demonstration this morning --

A. Mm-hm.

Q. -- was he setting the background on peaks?

A. He was setting the background on peaks. And the results that the OS/2 software generated were not in the least surprising, when you placed anchor points onto peaks, on the top, on the bottom, or wherever. That's not at all surprising.

In fact, that's what the SOP is intended to avoid. That's why it's a quality-control step.

Q. Now, let's talk about peaks start/stop.

It looked to me, like when Dr. Davis was identifying peaks start/stop, he went down and was looking at the peak chromatogram in his demonstration for peak start/stop.

What did you observe the technicians in Paris doing? What were they looking at?

A. The technicians in Paris were looking for something very specific. The peaks start -- they should have a peak start, which is just before the peak, really. It can be quite a bit before the peak, but -- because you are going to subtract the background anyway. So the peak start should have the isotope ratio or in the case of these raw data, a nine current ratio that corresponds to background. You want to be on background at the beginning and at the end.

Q. And by nine current ratio, is that the number that popped up in that little box?

A. Yes, it is. And it's also the swoosh that we saw this morning. So there's flat parts, and there's peak parts.

Q. And the screen on top as opposed to --

A. The screen on top. And so they would call up the box that you saw, and it has, if I recorded it correctly, three high intensities, a two-to-one ratio, and, I think, time.

Q. A major, minor; two-to-one, three-to-one?

A. Yeah, something like. Okay. Fine.

Two-to-one is the only one I was really paying attention to. And so they would take a cursor, cursor, and they would move it in a region that clearly had no peak to determine the two-to-one ratio in the region of background.

And if memory serves, at least for the A samples, the number was something like 1.174, which is a perfectly reasonable raw ratio. And they would look at that, and then they would -- and then they would move into the region of a peak, and they would see it change dramatically. So they would back off and then set it at a background point.

And then they'd do that for the other side of the peak. And I saw that because I was looking carefully for that particular -- looking to try to understand what they were doing. And it actually wasn't too hard to understand because they were doing that same thing every time. It was very mechanical.

MR. YOUNG: I have no further questions. Thank you.

MR. BRUNET: Thank you.

Any further questions?

MR. SUH: Yes, we do have. Also, we would like to recall Dr. Davis on a very narrow point dealing with the instrument as it relates to linearity.

MR. BRUNET: Would you like to recall him after Dr. Brenna or --

MR. SUH: We could do it either way.

MR. BRUNET: Well, why don't we finish with Dr. Brenna then?

Mr. Suh, unless this will last less than ten minutes -- I don't want to press you -- perhaps we should break for lunch at this time?

MR. SUH: All right.

MR. BRUNET: One hour.

MR. SUH: Okay.

MR. BRUNET: We'll come back at 1:15.

MR. BARNETT: Can we discuss the rest of the schedule and confirm? We have no further witnesses after Dr. Brenna. Respondent had asked earlier on if they would ask questions of Dr. Botré. Are they still planning to do that?

MR. SUH: No. Unless we -- there are follow-up questions following questions that USADA might ask, but we're not planning on asking any direct, no.

MR. BARNETT: We are not planning on asking any either.

MR. BRUNET: Okay. So, then, we would be back with the cross-exam- -- the end of the cross-examination of Dr. Brenna and then with Dr. Davis.

MR. SUH: For five, ten minutes, just to discuss the linearity issues.

MR. BRUNET: Okay. So we'll be back at 1:15.

MR. SUH: Mr. Chair, one more on scheduling. Would there -- right after the end of the evidence, are we planning on going straight into closings?

MR. BRUNET: Yes, we would.

MR. SUH: Okay.

(Lunch recess taken at 12:10 p.m. to 1:40 p.m.)

MR. BRUNET: Welcome back.

Mr. Suh.

MR. SUH: Thank you.

EXAMINATION (Cont'd)

BY MR. SUH:

Q. Good afternoon.

A. Good afternoon.

Q. I believe you testified this morning that relative retention time is calculable off the mix cal acetate; is that correct?

A. I don't think that's what I said. I --

Q. Would you disagree with that

statement?

A. I would not disagree that one could calculate relative retention times from any chromatographic mixture.

Q. I'm sorry. Any --

A. Any mixture. I said any chromatographic mixture. I would not disagree with that statement.

Q. You would not disagree.

Well, let me ask you this: Are you saying that you can calculate the mix -- the relative retention time off of the mix cal acetate in this case?

A. I'm sorry. Could you just repeat the question? I didn't hear one word in there.

Q. Could the question be read back, please.

(Reporter complies.)

A. You can calculate relative retention time off of mix cal acetate, yes.

Q. That isn't an answer to the question, sir. I'm asking whether or not you can calculate the relative retention time off the mix cal acetate in this case. The mix cal acetate formulation used in this case. Yes or no?

A. Yes.

MR. BARNETT: I'll object to asked

and answered and the limit on yes and no. I think Mr. Suh has learned better this week.

Q. And is it your testimony that you can calculate the relative retention time in this case of the 5-alpha and the andro?

A. Those compounds are not in the mix cal acetate, so you cannot calculate a relative retention time from the mix cal acetate. That was your point. I'm sorry. I didn't understand.

Q. That was exactly my point.

I would like to show you what's been marked USADA 175. Do you recognize what's -- what is USADA 175?

A. If you could blow it up, I'm sure I've looked at it at some point.

MR. BARNETT: Can we also get the witness a hard copy, please, Mr. Suh.

Q. Do you recognize -- have you had a chance --

MR. BRUNET: Counsel, we'll wait until the witness has a hard copy.

A. Thank you.

Q. Okay.

All right. Do you recognize that USADA 175 contains or identifies the compounds which are used in the mix cal acetate in this case?

A. Yes.

Q. Okay. So, why don't you identify

for me where you see the 5-alpha androstenediol in the mix cal acetate formulation used in this case.

A. It's not there.

Q. And tell me where you see in the mix cal acetate formulation the andro.

A. It's not there.

Q. So that is the reason why you cannot calculate relative retention time of the 5-alpha and the andro in this case, correct?

A. That's the reason you can't calculate it from analysis of this mixture.

Q. And, in fact, this morning when you were testifying, you went on at great length about your certainty with respect to relative retention time, but you didn't mention to the Panel that, of course, in this mix cal acetate, there is no 5-alpha and there is no andro, so you couldn't calculate the relative retention time. I don't think I heard you say that; is that right?

A. I don't remember going on in great length about relative retention time, but it is accurate that there -- all four analytes are not in this mixture.

Q. Your testimony is, you don't recall going on at great length about relative retention time?

A. I remember mentioning it.

Q. Just a mention.

A. Relative retention time, yes.

Q. Just a few sentences?

A. I recall mentioning relative retention time in the context of the drawing that I made up on the -- but it's a matter of record. So if -- do you have a question?

Q. Mm-hm.

I would like to show you what we will mark as GDC Exhibit Number 1374. And for the record, 1374, and I'm going to hand out copies to everyone, is a copy of the rough transcript of your testimony when you first testified in conjunction with this proceeding on May 14th. And I'll give you a copy.

MR. BARNETT: Are you giving him a complete set of his testimony?

MR. SUH: I'm giving him the relative pages.

MR. BARNETT: As determined by you?

MR. SUH: That's the question. If

you want to show him pages on redirect, be my guest.

MR. BARNETT: And I assume you have a copy for us as well?

MR. SUH: Yes, we do. They are Pages 141 and 142.

Q. (By Mr. Suh) And let me read to you the questions that you were asked. It starts out -- question with respect to USADA 171 and 173.

MR. SUH: Todd, could you put USADA 171 and 173 on the screen?

Q. (By Mr. Suh) Dr. Brenna, do you recognize USADA 171 and 173, which were the subject of your testimony of May 14th of this year? Do you recognize it?

A. I'm sorry. I thought you were just reading, so -- are we reading from here?

Q. No. I'm asking if you recognize USADA 171 and 173.

A. I recognize them.

Q. And what do you recognize them to be?

A. I recognize them to be F3 fractions which I think are athlete's F3 fractions, so the

diol fractions, which I believe that to be the case, but I can't exactly read it.

MR. BARNETT: Again, let's give him a hard copy if we're going to show him documents, Mr. Suh.

A. Okay. Thank you.

Q. All right. I'm going to read to you from this transcript. And just for clarity sake, 171 is the GC/MS phase, on the left, of the chromatogram on the right, which is the GC IRMS phase, right?

A. Chromatograms, yes.

Q. Okay. The question.

MR. BARNETT: Mr. Suh, can you clarify who's asking the questions, please, since we don't know the pages?

Q. Questions. I'm asking the questions:

"What are we looking at, 171? "

Answer: "171 is a GC/MS -- may I have your laser pointer."

Question: "Yeah, you sure can."

Answer. "Thank you. 171 is a GC/MS run which was shown this morning before lunch, and it is of sample 995474, fraction 3. So,

it's exactly the sample that is of interest here. And there are three peaks of particular interest. There is the 5-beta, the 5-alpha and the pdiol."

Question: "Could you tell me what 173 is?"

"173, which I think is also here

somewhere. 173 is the GC combustion version of that same chromatogram, that same sample. Sorry. The GC IRMS. Sorry. We have been calling it the IRMS. I apologize. The IRMS version of that."

"And what are the three peaks of interest here?"

Answer: --

MR. BRUNET: That was a question.

Q. Question: "What are the three peaks of interest here?"

Answer: "Same three."

Question: "And how would I know?"

Answer: "5-alpha, 5-beta."

Question: "How would I know which is -- which is because they just have numbers at the top?"

Answer: "Well, they have retention

times that match on previous -- with the previous GC/MS and the GC/MS delivers structural information, like aliquots, and so forth, which tell us which is which."

Question: "By the numbers at the top, can you identify those for us, like which is the 5 beta."

Answer: "This one. 5-beta, 5-alpha, pdiol. Is that what you are asking me?"

Answer: "Good."

Do you recall testifying to that?

A. Yes. Yes.

Q. And at the time you were describing the importance of the retention time, you were describing it in relation to the peak identification between the GC/MS phase and the GC IRMS phase; is that right?

A. Yes.

Q. But you didn't talk about that today, did you?

A. I talked about whether retention times should coincide between the two, and relative retention times --

Q. Between the two what?

MR. BARNETT: Let him finish.

A. I talked about whether relative retention times should coincide between rel- -- retention times and relative retention times should coincide between the two techniques.

Q. The two -- what two techniques?

A. GC/MS and GC combustion IRMS.

Q. Do you feel your answer here today, when you were asking -- asked questions by USADA, was misleading the Panel at all?

A. It was not my intention.

Q. Do you feel now, looking back, now having the opportunity to review your transcript, do you believe that you could have left a misleading impression, whether you intended to or not, about the importance of relative retention time between the GC/MS phase and the GC IRMS phase?

A.   I don't think so.

Q.   You testified, when being asked questions by USADA, that the retention time drift that you saw of about three seconds didn't concern you because it was -- it took place over about four weeks, right? About a month.

A.   Correct.

Q.   Okay. How much time separated the Sample A test and the Sample B test in this case?

A.   Well, I haven't kept that in my head, so, let's see, 723 was the A; is that right? And 806 was the B, so it was a couple of weeks.

Q.   Can you tell me how many days?

A.   Would that be 13, perhaps.

Q.   Do you want to take a look at it again?

A.   I could look.

We're in July. The 23rd of July and the 4th of August, so it would be 11 days.

Q.   Do you believe a retention time drift of about three seconds over 11 days would concern you?

A. Not in the least.

Q. Let me ask you this: You said that in your lab you see different times resulting from different analyses run on a GC/MS and a GC IRMS instrument?

A. I did.

Q. And that in your lab, you see molecules that come out at, well, different

retention times depending upon which instrument you use; is that correct?

A. That's correct.

Q. And do you see, in your lab, differences in that -- differences between those instruments of as much as four or five minutes?

A. Well, it depends on how we set up the analysis. But, in general, if we were trying to match them closely, we would not see differences that big; but if we were setting up our analyses in other ways, then we might.

Q. Do you recognize what this is?

A. From here, it looks like a capillary, a fused --

Q. Can I show it to you?

A. I'm sorry?

Q. Do you want me to show it to you?

MR. BARNETT: Do you have one for us, Mr. Suh?

MR. SUH: You can have mine.

I don't have a special thingy for everyone. You're welcome to look at it, though.

A. It's a nice cut. Yep, it's a fused silica capillary.

THE REPORTER: A what? I'm sorry.

THE WITNESS: A fused silica capillary.

Q. And what is a fused silica capillary used for in relation to carbon isotope as you are testing, or fused GC/MS testing?

A. Okay. In relation to this. A fused silica capillary, one of these, which is on the order of tens of meters long, 20, 30 meters long, typically, will be the gas chromatography column, and it will also be used with respect to the combustion IRMS system to move gases through the interface that was up there this morning through -- to the combustion furnace to the water trap and on into the mass spectrometer.

Q. I have to return this to where I got it from.

A. It will stay better that way.

Q. Let me ask you, Dr. Brenna, do you see -- it's not your contention that you would see the substances traveling through this capillary come out minutes apart from each other, is it?

A. If they were injected minutes apart, they --

Q. No. If they were injected at the

same time.

A. I'm sorry. The question is not well enough defined. I can --

Q. Let me try again.

A. Yeah.

Q. Earlier, you testified that it doesn't concern you at all that the substances don't come out at the same time -- at the same retention time, correct?

A. That is correct.

Q. And when you were testifying to that, what I didn't hear you testify about is how much time would concern you or would not concern you. So I'm asking you.

A. Okay.

Q. Are you saying that substances traveling through this tube would come out minutes apart from each other if injected at the same time?

A. I have to qualify my answer, because I need a little bit more than that, so I'll try; and if I'm not responsive, you can ask again.

The -- if you are referring to the distance from the end of the gas chromatograph to the IRMS, and you are asking me whether two compounds that enter that capillary -- they wouldn't enter at the same time; they would enter it at slightly different times. If you're asking me if they would travel -- if they would take four minutes to go through, at the typical flow rates we use, the answer is no; it wouldn't take four minutes to go through.

Q. So when you were talking about the fact that it did not concern you that there was a difference in retention time, you weren't talking about the differences in retention time we see in this case. You're talking about some theoretical differences in retention time in some other case; is that right?

A. Let me clarify my comments. It is not the case that one would see identical retention times or relative retention times between GC/MS and GC combustion IRMS. I think you are asking me whether the interface between the GC and the IRMS could cause a four-minute delay, and the answer is no. It wouldn't cause a four-minute delay. If everything was matched, it wouldn't cause a four-minute delay.

But it also would not be expected that the retention times would match within some sort of predetermined specification, and so I would not use a matching of retention times from a predetermined specification to match up peaks.

Q. That's why you use relative retention time, correct?

A. You can't use relative retention times. I explained why this morning. Would you like to know what to use? I can explain it. We have the chromatograms up there.

Q. No, that's all right.

A. Okay.

Q. Actually, no, why don't you go ahead and explain it. Go ahead.

A. Well, on the GC/MS side, we see a pattern, so we can see peak heights. And so -- and we want to look at the overall pattern is what -- an intermediate-sized peak; a small peak; this is one of the strong peaks; and then a large one. And then we move over a bit, and we find a large peak, an intermediate peak, a smaller peak. And then we move to the end, and we see a large peak.

And if you look, you see the same pattern here. In fact, I would -- I would say, you see a number of peaks here, a number of

peaks here, a number of peaks here, and they have approximately the same -- same look from this distance.

And so -- and so I probably stuck with that peak, and say, well, that peak looks -- of course, I'm already anchored on the internal standard, because I do know what that retention time is. And I then can identify that last peak, again, based on pattern, and these center peaks, based on pattern. And that's one of the ways that I would -- one of the ways that I would identify peaks, comparing them.

Q. Let's step back a minute. How familiar are you with the OS/2 software?

A. I'm not familiar at all with the specifics of the OS/2 software. I could not sit down and run it, unfortunately. Had I had it to do a week ago, I probably could have, but I can't do that now.

Q. Let me show you USADA 349.

MR. SUH: Todd, maybe you could zoom into the area of retention time between 800 and 900 seconds, the place where there are all those peaks lined up right next to each other.

Q. (By Mr. Suh) And then on the same

page, if you could, see if you could bring up USADA 344, and highlight just that left column there, that time column, and move that off to one side. There we go.

Now, I believe you were explaining

to the Panel that didn't cause you any concern to identify your anchor because there was a time right there, the 870 time, and there was -- well, there's nothing else around it, right?

A. Right.

Q. Okay.

Now, tell me how -- explain to me how OS/2 has determined that this one peak at 870 is the peak that you are anchoring yourself on. How does it do that?

Why couldn't it be any one of these right in here? Because what you said is, when you look at the -- when you look at the data processing result, well, there's only one peak there, and it's the closest one this time, so when you look at the chromatogram, it's apparent there's many peaks. And OS/2 has made a decision about which one to put on the data processing result.

So my question to you is explain to

me how OS/2 made that decision so that you can sit there with utter certainty to say, No problem.

MR. YOUNG: Can we have a clarification. Are the numbers in the picture from the same injection?

MR. SUH: Yes, they are.

MR. YOUNG: And which pages are we

talking about?

MR. JACOBS: It's F2.

MR. SUH: It's F2, the F2 injection, and it's USADA 344 and 349.

MR. YOUNG: Give me a second, please.

A. They're not from the same.

Q. (By Mr. Suh) I'm sorry. Excuse me.

MR. SUH: Leave up 349, and put up 350. It's 350. Excuse me. My mistake. Yeah.

Q. Same question, though.

How do you know which one -- how OS/2 has made a decision to assign which -- which peaks to actually pull up on the data processing results page?

A. Well, the way chromatography software normally works, and I did concede that

I haven't worked with OS/2. The way it normally works, one sets parameters, and I referred to parameters earlier this morning. One of those parameters for detecting peaks is peak threshold. That would be detecting peaks or rejecting peaks based on their intensity.

And what OS/2 seems to have done here is pick one, two, three, four, five, six, seven, eight peaks from eight peaks, and it's reporting their retention times.

Now, the process we went through

this morning, at great length, was the process that I would go through. It is the process I did go through several times to find that 870 peak. And now I know where all the internal standards come, or at least I know where the internal standard comes at the beginning. I know where the internal standard comes at the end.

And so this is the way we assign peaks in chromatography is by the method that I just described to you. And I showed the statistics at the end which indicated that there is very small variation -- I believe the number was .13 percent -- in those retention times from

whatever the mean was, which is something like 870.6 or some number thereabouts. So the peak at 880 adjacent to that -- we can look at how many standard deviations. I don't think I still have that. I'm sorry. I don't have the data in front of me. But the peak at 880 is several standard deviations away in time from that peak at 870.

Paper? Thank you.

Yes. So the mean of all of those peaks is 870.5. That's the retention time, and it is plus or minus .13, and so a peak that's -- well, 8 seconds away, would be 50 standard deviations away in retention time.

MR. BARNETT: And just for the record, Dr. Brenna, you were looking at this.

THE WITNESS: Yes, I was refreshing my memory as to -- this is the last slide I showed.

MR. BARNETT: And my only point is, I think we forgot to mark it as an exhibit this morning. It would be Exhibit Number 134. Hopefully everybody still has their copies.

Q. (By Mr. Suh) Do you recall when you testified, again on May 14th, 2007, and in your

testimony you said, with respect to the reprocessing, that you didn't really see any reprocessing.

Do you recall testifying to that?

MR. BARNETT: If we're going to ask him, why don't we just show him his testimony, Mr. Suh. You have it with you.

MR. SUH: I'm entitled to ask him a question about his memory.

MR. BARNETT: So it's a memory test.

MR. SUH: No, it's a question about what happened, but it also tests his memory. He's testifying from memory. He said several times on direct examination that, if memory serves me right. So, I'm curious. Does memory serve you wrong?

MR. BARNETT: And can we get a

ruling on the memory test.

MR. BRUNET: Mr. Suh, you can ask the witness if he recalls a specific fact. If you want to refer to the transcript, we have to look at that.

MR. CAMPBELL: Go ahead and ask the question.

Q. (By Mr. Suh) Dr. Brenna, do you

recall when you testified last, that you had testified that you hadn't observed the reprocessing -- I mean, you didn't see reprocessing occurring multiple times?

MR. BARNETT: Same objection. It was the same framing of the question.

THE WITNESS: Should I answer?

MR. BRUNET: You're asking the witness whether or not he recalls that he testified previously?

MR. SUH: Mm-hm.

MR. BRUNET: I'll allow the question.

Q. (By Mr. Suh) Dr. Brenna, were you present for the entire --

MR. CAMPBELL: He said he would allow it. Do you want an answer?

MR. BRUNET: I said I would allow the question.

MR. SUH: Oh, I'm getting a complex.

MR. BRUNET: I thought you were reformulating.

MR. SUH: No, I'm getting a complex.

Could you -- could you read back the question.

(Reporter complies.)

A. I don't remember those specific words, but I'll be glad to clarify what that seems to be saying.

Q. (By Mr. Suh) I just want to know if you recall saying that or not.

All right. Did you take any contemporaneous notes during your observation of the reprocessing?

A. I'm sure I took some notes, yes.

Q. You are sure you did, or you remember you did, or you remember you didn't, or something else?

A. I'm sure I took contemporaneous notes.

Q. Do you have them here with you?

A. I do not.

Q. Did you refer to the notes before testifying here today, your contemporaneous notes that you are sure you have?

A. I referred to them at some point. I reread them and reviewed them. I didn't bring them here, however, to California. They're back in New York, so I cannot produce notes.

MR. SUH: No further questions.

We would call Dr. Simon Davis just to testify on the linearity issue.

MR. BRUNET: Just before Dr. Brenna -- are there any further questions from Mr. Young?

MR. YOUNG: Thank you. No, we don't.

MR. BRUNET: Thank you.

MR. SUH: Dr. Davis here, you're fleet of foot.

THE WITNESS: And not just good looking.

THE REPORTER: Remind you of your oath.

THE WITNESS: (Nod of head.)

WHEREUPON,

SIMON DAVIS, Ph.D.,

recalled as a witness herein, having been reminded of his oath testified on his oath as follows:

EXAMINATION

BY MR. SUH:

Q. Briefly Dr. Davis, did you have an opportunity to listen to the testimony of Dr. Brenna, in particular as it relates to linearity?

A. I did, yes.

Q. And can you describe -- well, first of all, let me ask you this: Do you agree with his conclusions as it relates to linearity in the instruments of this case?

A. No. I think he's misunderstood my point.

Q. And do you -- can you comment on whether or not he accurately described the IsoPrime instrument in this case?

A. No, he seemed a little confused with another instrument.

Q. First of all, before we get to the actual substance of the linearity discussion, could you describe for the Panel what parts of his description of the instrument and how it works were incorrect?

A. He referred to bellows, which we use to change the pressure of the reference gas and change the reference gas peaks. These are typically used in a -- what's referred to as a dual inlet system, not a continuous flow system.

The injections referenced gas in this case is done by a simple -- simple valve

configuration, so it's a total different inlet system.

Q. All right. Can you describe now whether or not you agree or disagree with the analysis -- and Mr. Chair, I'm going to look for the copies. We seem to have misplaced the copies of this particular exhibit. One moment, please.

MR. SUH: Mr. Chair --

THE WITNESS: I have copies enough to hand out.

MR. SUH: Oh, you have the copies?

THE WITNESS: Not all of the copies, no, but I have --

MR. SUH: That's where our copies have gone.

MR. BRUNET: Aha.

THE WITNESS: And I also have these as well. Sorry.

MR. BARNETT: You don't have any of ours, do you?

THE WITNESS: I don't think so. I'll check later.

MR. BARNETT: We're missing some.

THE WITNESS: I've already got one.

I don't have those. I gave those to you just before I came.

I'm pretty sure they're on the desk. Do you want me to quickly look? Because I think

I know where they are.

MR. SUH: All right. Could you please?

THE WITNESS: Fleet of foot.

You just can't get the staff these days.

Q. (By Mr. Suh) All right.

A. Okay?

Q. Please proceed.

A. You want me to explain linearity?

Q. Yes.

A. I think as I mentioned, in my earlier testimony, that linearity is very important because it ensures that we're able to get the same numbers for large peaks and small peaks of the same composition, and it shows that there's no change in the isotopic value simply because of the concentration of stuff that is coming out.

Now, could we possibly put the linearity run up, a graph, for instance.

Q. Sure. Which one?

A. LNDD 0314. Just as a sample.

Q. LNDD 0314.

A. Okay. So what we're seeing here, as I think I've described previously, is an analysis that's carried out where a series of reference gas pulses are injected into the mass spectrometer by the reference gas box, which I've very briefly described. And as the peaks go through, the operator will change the pressure in the reference gas box and, therefore, either increase or decrease the sample peak sizes.

Now, what happens is that the mass spectrometer analyzes these peaks and comes up with a ratio.

Could we possibly throw up the results of any particular file? The next one will be fine. That 315 would be fine.

What we see here is a series of ratios that are actually calculated and printed out for each one of the peaks in turn. Now, you'll see here, the rule of thumb -- it's very rough -- the calculation will show you later; I'll correct -- the rule of thumb, the very last

figure, the largest-to-the-smallest, the very last figure gives you a rough idea of the delta per mil difference in these peaks. Remember these peaks are exactly of identical isotopic composition. There's no miss -- a perfect machine, which admittedly never exists -- would all be identical.

So you see here -- it's just randomly picked -- 17- -- -788 and 1792, so it's a difference of approximately 4 per mil --

sorry -- 0.4 per mil. So that shows you, that's between the smallest peak and the largest peak, there will be a change in this instrument, at this time, of at least 0.4 per mil, roughly speaking.

So the way we say whether a machine -- the way we determine whether a machine is linear or not is a very objective set action. We have specifications for the machine which, laid out by the manufacturer, are present within the user's manual.

Can I possibly have this put up, please.

MR. SCOTT: GDC 1368.

A. So what I have here is the linearity

specifications from two of the mass spectrometer manufacturers: The IsoPrime, which we're talking about, and another system, the Thermo Mass Spec. Now, they describe it slightly differently.

I'm not sure I need to go into too much detail on that. But in essence, the specification is that the linearity on the IsoPrime mass spectrometer, must be equal or less of 0.3 for that mass spectrometer to be within specifications. It's taken off of the GVI Web site and, to the best of my knowledge, it's still up there today.

Thermo described it slightly differently. They describe it as a change in isotope delta values, per nanoamp. This is a change in delta values over a full range so --

Can I quickly go back to the previous -- I'm sorry. 314, please. Sorry. LNDD 314.

Okay. What we're talking about here, you are supposed to have the GVI specifications state that you have a full range in the spectrometer from 1E minus 8 amps down to somewhere around here, 1E minus 9 amps, and

between that point there and that point there, any peaks should not be -- with the same composition should not deviate in isotopic value by more than 0.3 per mil. Now, all those we see are somewhat truncated and don't use the full scale.

But it's clear that a number of the linearities that they performed are out of that specification.

Can I throw up the actual results that I've calculated rather than me --

MR. SUH: Todd, do you have --

A. Rough estimates.

MR. SUH: -- GDC 1367. We'll put it right up here.

A. So here you see linearities that

were provided to us. These are done -- there will be some discussion whether we should use peak heights or peak areas. You can use both, with some care. But these, just make clarification because USADA would claim that peak heights should be done, have been calculated on the peak heights. So we'll see here that these first two, in linearity, are clearly outside the specification for the

IsoPrime instrument.

If we use the Thermo specification, which is the GVI specification, if we use the Thermo specification that they described the machine as being nonlinear, then the Thermo specifications are equal or less than 0.2 per mil. Then if we use that specification, then you might just argue that linearity 2 and 3 are correct in there, but the rest are certainly out of specification.

So this was the basis of my argument that the isotope machine was not linear, irrespective of whether those peaks cover the range in which the samples were being run. In fact, precisely because of that, because that is measuring the range over which the samples were run.

So, USADA's argument actually helps my argument in the sense that the peaks, the reference gas peaks, were placed over the range in which the samples were run, and it failed the test. So that machine was not linear. And again, Christiane Ayotte's words: "It was not fit for purpose."

MR. SUH: No further questions.

MR. BRUNET: Thank you.

MR. BARNETT: We have no further questions.

MR. BRUNET: Thank you.

Thank you, Dr. Davis.

MR. BRUNET: Do the parties have any further witness or proof to the Panel?

MR. SUH: No, Mr. Chair, we do not. We would rest.

MR. BARNETT: The only thing we have is some collection affidavits that we don't have to put in. We'll put it in at the end of the day, if that's okay.

MR. SUH: No objection, Mr. Chair.

MR. BRUNET: Thank you.

The Panel would like to have a sense of the time that you would like to present your closing arguments.

MR. SUH: We understand that we were allotted 90 minutes per side and that we would be going second. We're going to try not to go 90 minutes. But, certainly we won't go over 90 minutes.

MR. YOUNG: We would be the same. I know under UCI rules that the athlete has the

opportunity to go last. Probably what I would do is use much less than my 90 minutes in the first part of the close, and then I would just reserve time to respond. And we can find out now whether that athlete wishes to go last, or whether we're going to follow the normal order of USADA, Respondent, USADA.

MR. BRUNET: Mr. Suh?

MR. SUH: Mr. Chair, we always understood the Panel's order that we would be going last and, pursuant to UCI rules, that we get to speak last and that we would not be in a situation of USADA making an argument, making rebuttal, and leaving us open to no opportunity contrary to USADA rules -- the UCI rules to respond. So, we would like the Panel to stay by our previous understanding of what was going to occur here.

MR. YOUNG: And so, we're perfectly fine with that. What we'd like to do is to make the shorter part of the presentation, let them use whatever their time they want. We can respond, and then they have the last word. That's the way it typically happens in cycling cases.

MR. BRUNET: Mr. Suh? Is this acceptable to you?

MR. SUH: Again, Mr. Chair. Our understanding is that we're going to go last and that we would go 90 minutes per side and that we wouldn't be breaking up our argument. Based upon our understanding of that which we broached at the beginning of this proceeding, we have prepared accordingly, so, no, it's actually not acceptable to us. We would like to stick by the UCI rules.

MR. YOUNG: And may I respond? The UCI rules simply gives them the opportunity to go last. We obviously prepared very differently.

MR. BRUNET: Do you have a copy of our order, or should I pull it up from my computer just so that the Panel's clear on this?

MR. SUH: One moment, Mr. Chair.

MR. BARNETT: Do we remember what order that's contained in, Mr. Suh?

MR. SUH: We're looking it up.

MR. CAMPBELL: Well, you know what, we could flip coins, in case it's not clear in the rules.

MR. BRUNET: I have it. Procedural order Number 5. Actually, the order is not -- doesn't seem to be clear on the issue.

I'll read it: After completion of the presentation of the evidence, each party will be provided with an opportunity to make a closing argument which shall not exceed 90 minutes in length.

MR. SUH: We understood a closing argument to mean a closing argument, not multiple closing arguments.

MR. YOUNG: And I guess we have two reactions to that. One, as Mr. Jacobs knows well, in our last protracted case, which was Tyler Hamilton, this is exactly the order: We went, they went, we responded, and then they got the last word.

And the other is, we have seen so many different defenses and new defenses, that it's going to be a little hard for us to anticipate which ones we need to specifically address.

MR. BRUNET: Perhaps before we resolve this point, Mr. Young, before the Panel makes a ruling, I would like to ask the parties

whether they should find it useful to file post hearing briefs.

MR. BARNETT: We do not believe there's any reason for post hearing briefs.

MR. SUH: We would leave it to the judgment of the Panel.

If you could -- if you could give me one moment to confer with my client.

(Counsel conferring with client.)

MR. SUH: We would leave the issue of closing briefs up to the Panel.

MR. MC LAREN: We'll consider the closing briefs in a moment.

In terms of presentation, what we would like to do, Mr. Young, is we want you to give your full presentation, reserve some time for rebuttal. Mr. Suh can give his full presentation, reserve some time for rebuttal in that 90 minutes. You'll have to make a judgment about how long that should be. And then, Mr. Young, still in the 90-minute limit, can provide rebuttal and, Mr. Suh, you'll have the last chance too, and the last word.

Are you clear on what I just said?

MR. SUH: I'm not precisely clear,

Mr. McLaren. I thought there were a couple of extra closing arguments in there.

MR. MC LAREN: No, there's not anything extra. Mr. Young has to give his full argument now, but he can reserve his time in the

90 minutes to reply to your full argument, which will be after his. And if you want to have last word, to reserve some time in that 90 minutes to have the last word.

MR. SUH: Okay. Thank you.

MR. YOUNG: And could we have a ten-minute break to get organized to respond to that approach?

MR. MC LAREN: We're going to take a break now. We'll let you know about the other point.

(Recess taken from 2:30 - 3:00 p.m.)

MR. BRUNET: Mr. Young, let's begin.

Before you begin, Mr. Young, we had a question, the Panel had a question, and the question was addressed to counsel for Respondent.

We'll see if you can answer, perhaps, that question or, otherwise, we would perhaps like to have Dr. Davis provide us with

the answer.

Referring to GDC 1368. We briefly checked the Web site of GVI Instruments, and the 0.3 standard that came up on that dot-HDM extension Web site or page, pointed to the newer instrument and not the instrument that was used in the test at LNDD. Could you provide clarification on that?

MR. CAMPBELL: Let's get him under oath.

THE REPORTER: Remind you of your oath.

DR. DAVIS: The ion optics, the magnet source detectors, are identical, as are the specifications. There is a sign-off document in the doc pack with the first page of the old instrument, one of six, and the other five pages were not provided by LNDD, and that would have the specification on it.

MR. MC LAREN: Can you have Counsel give us that reference at a later point? You don't have to do it right now.

DR. DAVIS: Okay.

MR. BRUNET: Thank you.

We can remove the GDC 1368.

Mr. Young, begin your closing statement.

MR. YOUNG: Thank you.

First, I would like to thank the Panel and Dr. Botré for your patience and insight in this process. I would also like to thank you for your firm, but wise, hand in making this a fair process for both parties.

During opening argument, USADA told you that this was a relatively standard science case involving well-settled principles of IRMS analysis. We think we have demonstrated that.

During Respondent's opening, Respondent said that this was a case involving conspiracies, bad acts, and attempts to hide the truth.

After our nine days of evidence, we respectfully submit that USADA has done what it told you it was going to do and, to some extent Respondent was right. But it turns out that the bad act and the attempt to suppress the truth were by Respondent's business manager, and in trying to intimidate Mr. Landis, in his Web posting by Respondent.

This case is different than your

typical doping case in several ways. In a typical doping case, usually all you get to hear about is what was in the athlete's urine. In this case, the events and the evidence have also shown us a glimpse of what was in Respondent's mind:

The to-win-at-all-costs attitude that we have seen from Respondent and his manager were displayed this week, and it gives you an insight into -- and I think these were his words -- the principles of Respondent and how he makes decisions. Those were the same principles and decision-making process that were in effect when he made the decision to dope during the Tour de France.

One thing that was also unusual in this case was that we had a cyclist, Joe Papp, come forward and break the code of silence and tell you about he had doped and the pressures on him, why he did it, what he used. The idea that it would have made no sense for Mr. Landis to have doped during the Tour de France is certainly different than the world that Joe Papp describes. It's also different than what you have seen in Mr. Landis' own Phonak team.

The desire to win is real. The risk of winning at all costs is real. The pressure to dope is real. And what simply happened is, in this case, Respondent got caught in Stage 17. Don't know what he did different, but for the first time his T/E spiked enough for him to be subject to the IRMS analysis, and you saw what the results were.

Let me start with the WADA criteria. The rules set down by WADA that apply to this case are that a sample is positive if a single metabolite endogenous reference compound combination is greater than 3.

Where is our chart? Where is my copy?

In this case, the difference in Mr. Landis' sample was more than six. The Panel is entitled to rely on the WADA criteria.

Throughout this eight days, we have heard a lot of testimony about a lot of different chromatograms and, frankly, it's been pretty hard, at least for me, as we have gone through the book and in Respondent's questioning jumping from one chromatogram to another and whether it gets a C grade or it's a good

chromatogram. It's hard to keep the different chromatograms and samples straight.

What is really important in this case is the clarity of what you are looking at. The case is about a positive A Sample and a positive B Sample for the fraction 3 diol metabolites.

What you heard from Dr. Ayotte, Dr. Catlin, Dr. Schänzer and Dr. Brenna was, when they looked at this athlete's sample, the analysis that was done by the Paris laboratory, and particularly focused in on the diol metabolite and the endogenous reference compound pregnanediol, the 5-alpha diol and the pdiol. In this sample, they had no issue whatsoever with the chromatograms. There are two of them. When it's all said and done, the question is whether these two chromatograms can be believed, is the A Sample and the B Sample.

Now, it's interesting in the

testimony that the only attack on either of these chromatograms was when Dr. Meier-Augenstein said that in the GC/MS analysis before one of them, he saw that small peak. And, theoretically, that small peak could have

been included in the IRMS analysis of the 5-alpha as opposed to the 5-beta as opposed to being resolved in the background. He didn't know whether it was. He didn't know how much it contributed. He did that calculation where, using his hypothetical extremes, it made a difference of two delta units. But that was also based on his assumption which Dr. Brenna pointed out was wrong; that when you have two peaks overlapping, it's the second peak that gets the isotope effect. It's the one that will be reduced in delta value the most. And as Dr. Brenna explained this morning with his picture, that's not what his research concluded.

What's more important is that the speculation is to the possibility that Dr. Meier-Augenstein was directly refuted not with maybe, but directly refuted with it is not included by Dr. Brenna. That's why he put up the ion trace, and he showed you that there was background on either side of that 5-alpha peak, and there to the left of it was the small peak that Dr. Meier-Augenstein was speculating about.

The other thing that is worth noting in all of the discussion about all of the

different chromatograms you have looked at is that there are chromatograms in there for the mix cal acetate before and after on the A and before and after on the B. And these are the chromatograms that all the witnesses have referred to as yeah, this is clean; yeah, this is accurate.

There's been no challenge on those. I think -- I don't have his transcript -- but I think Dr. Meier-Augenstein's comment was, Yeah, this shows that the instrument is working. Well, that's important, because if there were pressure problems, if there were linearity problems, if there was some other problem with the instrument not measuring accurately, it would have been reflected in the mix cal acetates. And I think that as you go back over the testimony in this case, you won't hear anybody saying there's any problem with those chromatograms.

Burden of proof: It starts out with the Respondent having the burden of satisfying the Panel to its comfortable satisfaction that doping occurred in the case. And meeting that burden, USADA is aided by the ISL which says, if you comply with the ISL, you are deemed to have done your job properly. The presumption is in favor of the laboratory results.

Now, the Respondent has an opportunity to rebut that presumption, but the way you rebut the presumption is to show that there was a departure from the International Standard. It isn't some general problem. It is the identification of a departure from the International Standard. And then if there is such a departure, the laboratory has the opportunity to come back and show that that departure did not cause the positive case.

What we have seen here is very little about departures from the International Standard for -- one of the reasons is none of their witnesses had any experience with the International Standard or ISO 17025 or, in some cases, any laboratory accreditation standard.

So what we have heard is that they have a general problem here. They have a general problem there. The classic example of that is the magnet with the Mickey Mouse ears, the picture of that on top of the instrument, which it turns out it certainly wasn't clear in

direct, it was not the IsoPrime 1 at all. It was the IsoPrime 2 instrument. And the explanation was, Well, that was just a picture to show that they aren't very careful in what they do.

That's what the evidence you've been hearing is. It's not directed. When they're making an attack, it's not directed to a violation of the International Standard. It's directed to what they view as not as good laboratory practices as they would like to see. Except that it's not the Panel's job to cast -- to make a decision on whether the Paris laboratory should be accredited or whether they generally do their work well or even whether they generally do their work well for IRMS. There's an accreditation body whose job it is to make that decision. That accreditation body is the ISO agency that inspects and accredits them, and that's what happened.

Again, focus back on whether there is a departure from the International Standard on the IRMS results for the A and B Sample.

Let me talk about the manual reprocessing, or the quality control, as Dr.

Brenna describes it. First, we have two very different descriptions of what happens. What Dr. Brenna said, and what the three technicians -- the two technicians and supervisor from the Paris laboratory said, and what their SOP says, is that this is not art.

It is a mechanical process where you follow an ion trace, and based on that ion trace, you set baseline points and you set peak height, your peak starts and peak stops. It's not subjective. It follows a mathematical formula. In fact, Dr. Brenna said somebody could even program that formula into the computer.

Now, the criticism is that yes, when they got the raw data, which is in the electronic data files, and then they did the manual processing quality control, they could have taken a snapshot. They could have hit save, and every single time that they reset the baseline or reset peak, at the end of all of that, they could have saved it.

Well, first, why would they do that? Second, why is it required, or is it required? I guess -- well, first let me talk about whether

it's required. That takes you to the International Standard for Laboratories. You heard specific testimony from Dr. Ayotte on this: that what happens when you were doing manual baseline adjustment and peak start and stop is not changing recorded data; it is processing. It is part of the processing that the technician does, and they're not required under the International Standard for Laboratories to document and initial in the margin with the time and date every step that they take in processing. If they record data as final data, as you see in the doc pack, and then they change it, that's a different matter.

The second point on whether you would expect in common sense that the people at the Paris laboratory would hit the save button is this: So in the history of anti-doping cases -- I mean, the reason, now, is well, gee, if you went back and got the electronic data files, you would not only see the original data, but you could see all the changes that were made. In the history of anti-doping cases, nobody's ever gone back and looked at the electronic data files. This is not something

that a laboratory is even close to being required to produce under the WADA technical documents -- technical document that identifies what a laboratory is required to produce. We went through all of this in discovery. WADA is very clear about what documents a laboratory is required to produce, and it isn't electronic data files.

But then Dr. Goldberger, who said he testified in 125 criminal cases or more, had never in his life been asked to produce electronic data files. So it's a little hard to fault the French laboratory, when they're not required to push that save button, and when no laboratory has ever had electronic data files examined in a doping case, and frankly, in Dr. Goldberger's criminal case, to fault them for not doing that.

Let me talk about defenses that we have heard. Maybe I can anticipate some of the defenses that I think I will hear in closing from Respondent; but that's a little hard to do, because there have been so many defenses raised that when thrown up against the wall, that when they were exposed to the light of day, went

away.

A couple examples: The first was the same person who was involved in the analysis of the A Sample who was involved in the analysis of the B Sample, and as a result of that claim, Cynthia Mongongu and Esther Cerpolini got their names in the world press. We haven't heard anything about that so far in this proceeding. Whether it will appear in close again or not, I don't know.

Sample deterioration. It was a major point in the briefs; we haven't heard about it in the last nine days.

The allegation -- the forceful allegation that Cynthia Mongongu, when she was performing the analysis of Sample 995474, along with other samples from the Tour de France, knew that that was Respondent's sample because of the medications he listed. When they asked her the question, that's gone away.

Correction factor. When you take the uncorrected delta value and you correct it down to a delta value, that removes the acetate. You didn't hear about that one either.

So it's a little hard to guess what

they might talk about, but let me -- let me talk about a couple of them.

And a general comment that goes to a number of these defenses: We have had a briefing schedule in this case. The purpose of the briefing schedule was so that the parties could identify their arguments and the other side could respond.

Respondent has filed 200 pages of briefs with the Panel. The point that they made yesterday about batch numbers in the standards being left blank and, in some cases, the numbers not matching up, for example, in some of the mix cal IRMS and mix cal acetates, is the very first time that that point has been raised in this case. You can go back and look through the briefs.

They insisted, and the Panel ordered, that we fly six people over from Paris so they would be available for cross-examination. None of those people were asked about this point. This is pretty clear that what is going on here is not an attempt to aid the Panel in finding the truth. What is going on is pulling rabbits out of the hat at

the last minute so that LNDD has no opportunity to respond, and the light of day is not shed -- shown on those arguments.

Classic in this case, that argument that they made that isn't in their 200 pages of briefs, is not something new based on the electronic data files or anything that's happened recently in the case. That's an argument that's made on the documentation package that they've had for more than six months.

Let me talk about linearity. So why is it that we just see a posting off the Internet for the first time today? In terms of the merits of linearity, first, the timing of the measurements, the SOP says it's done monthly. In this case, it was done within a month of one of Respondent's samples. It was done within a little over a week of Respondent's other sample.

Most importantly, I think, was the effect of linearity. Do you -- do you remember Dr. Brenna's explanation of it's a yardstick to measure something that's six inches high and something that's 6 feet high, and you get the

same difference? Remember that, in this case, the difference that we care about is the difference in the peak height between 5-alpha and pdiol. This is not about a 6-inch peak and a 6-foot peak. We're talking about peaks that are the same size, roughly, where linearity would make the least difference.

Talk about retention time. Switch to this. First, and it's important for clarification, if we're talking about the International Standard for Laboratories, this is from the technical document. It's Exhibit 12.

That talks about retention time. It does not talk about relative retention time; it talks about retention time. And the criteria that are set are one percent and plus or minus two minutes. And if you look at the analysis on the instrument, whether it's the GC instrument, the GC/MS instrument or the GC IRMS instrument, all of the measurements are incredibly consistent and are well within that one percent or seconds.

What Respondent is arguing is simply not part of the International Standard for Laboratories. What they're trying to say is,

Well, first of all, we're not looking at retention time. We ought to look at relative retention time, and what we ought to do is compare it from one instrument setup here to another instrument setup here, and that was the gist of Dr. Brenna's testimony is, you just don't do that.

Let me talk about the defense that -- and Dr. Amory was a credible guy. I was a little surprised, as the Panel may have been, that he's testifying on -- as an expert in an anti-doping matter when he'd never heard of a Berlinger bottle. But his point was, from a physiological point of view, it makes no sense for an athlete to use testosterone for recovery, or for anything, other than building muscle mass. That's his opinion. He may even be right. But if he is right, the cyclists of the world are listening to the doctor in Germany whose Web post Mr. Barnett asked Mr. Landis about. They certainly aren't listening to Dr. Amory.

This was a letter from UCI that shows the number of testosterone cases that they had in UCI tests in cycling, just by UCI tests, in the years 2002 through 2006. And it's Exhibit USADA -- it's USADA 1523, and that would be Exhibit --

MS. SLOAN: 98.

MR. YOUNG: 98. Thank you.

It was also interesting that Dr. Amory agreed that yes, your testosterone goes down during a stage race, which is what Joe Papp, who's not a Ph.D., said is why that he and other cyclists use low doses of testosterone to try to get it back up.

Let me deal with the pattern comments that Dr. Amory, and maybe somebody else, made. When you look at the T/E results and you look at the IRMS results for the other seven tour samples, and for the Stage 20 sample, does this show you a pattern that means that there's something wrong with the analysis? And shouldn't -- question: Should the endogenous steroid profile be suppressed? And Mr. Campbell asked that question of Dr. Campbell -- or of Dr. Catlin which, frankly, is a question that I probably should have asked him, because what he said was, Yeah, if you are taking THG or norbolethone, which were two of the synthetic steroids in the BALCO case, you'd see suppression of testosterone and epitestosterone, and the T/E ratio. But if you were taking T, particularly in smaller amounts, you wouldn't see that, and I think his final response to Mr. Campbell is that's why athletes who are doping would use testosterone.

Dr. Amory's opinion was, as best I can tell, based on reading three different studies: the one by Dr. Shackleton, one by Dr. Aguilera which was also co-authored by Dr. Catlin, and the one by Dr. Schänzer. You had the opportunity to hear from the authors of each of those three studies, and the opinion of the authors on whether or not this pattern somehow means that there's something wrong with the measurement or that there wasn't doping was, no, that isn't. The fact that there -- when they look at those results, they don't see any problem with those results at all in terms of their accuracy or the fact that there was doping going on.

So what you have is a guy who's relying on studies by three people who have tremendous expertise and, particularly in the

area of steroid metabolism, there's nobody in the world who has more expertise than Cedric

Shackleton. He's relying on their three studies and coming to a different conclusion than the authors.

One of the things that Counsel did with Dr. Amory is to take him through, for example, the Saugy study, which I was asking him about, and the Shackleton study and go person by person to say, And does this look like the profile of Mr. Landis? The answer: No.

Two responses to that. First, the point of Dr. Shackleton's testimony was everybody is different, and you can expect different results. Every substance is different, and you can expect different results. Time of measurement is different. And, more importantly, the subjects in that study were not dopers trying to conceal their doping. There was no mix and match of products. There was no effort by the people in these studies to evade detection. What there was, was in the case of Shackleton, for example, an injection. In the case of the Schänzer studies, a gel. In the case of the Saugy studies, a pill. There's no mix

and match. There's no cream. There's no on-again, off-again to try to beat the T/E test so that you won't be subjected to IRMS.

I don't think it should be an issue with the Panel anymore that you can have a perfectly normal-looking T/E ratio, certainly, under 4, and still be IRMS-positive. It wasn't what the case ended up being all about, but those were exactly the facts in the Hartman case.

Let me go back and talk about some of the corroborating evidence in this case, and it's important when you look at the corroborating evidence to, again, keep in mind that any attacks on the corroborating evidence are attacks on the corroborating evidence.

For example, the samples that were analyzed on April 16th, different instrument, different software. If there's a peak in there that somebody doesn't like, that's not the A and B Sample peaks. You've seen this before. It's what happened during the reprocessing, and the Panel is aware of all of the hours that we spent in hearings and briefs so that Respondent would have the opportunity, under the supervision of

an independent expert appointed by the Panel -- that's Dr. Botré -- to go and look at the electronic data files.

And the Panel was real clear, and Dr. Davis acknowledged today, that Respondent was free to have those electronic files looked at any way he wanted. What Respondent had said throughout in their representations to the Panel was that if we just look at the electronic data files on a better software, the MassLynx software, then that will give us the opportunity to accurately evaluate the case.

The problem is, for them, that when they analyzed the data on the MassLynx software, the Respondent was still positive. That was their idea; it wasn't USADA's idea or the Paris lab's idea.

Then they went back, and they said, Well, we want to manually -- excuse me. We want to see what the software would show if there'd been no manual integration, if Claire Frelat and Cynthia Mongongu would not have adjusted the baseline, they would not have set the peak starts and stops. What do we get? Again, 5-alpha pdiol is positive. So they tried

it yet another way. And I'm not meaning to say -- they tried it all three ways. They didn't know the results as they did it.

They tried it a third way, which was no background, and, again, the results were positive. This was not a process that there was any issue whatsoever of time gaps or anything suspicious on the part of the LNDD people. This was done under the supervision of Dr. Botré.

Let's look at the results of the further analysis samples. As the Panel is well aware, and spent a lot of your time dealing with, starting the first of the year, USADA has been attempting to have these samples -- the B Samples analyzed. It's all that was left. Respondent fought that and fought that and fought that, and finally, the samples were analyzed. And now we know why they were fighting it.

The results of those B Samples, and again, you have the doc packs, showed that there was exogenous testosterone in those B Samples. Not a positive test, because there's no A Sample; simply evidence that there was exogenous testosterone in those B Samples.

T/E ratio? It's not for USADA to prove what Respondent did to cause his T/E ratio to spike up above the norm so that he was subjected to IRMS analysis. But when you look at the longitudinal profile, this is a highly abnormal case.

Last, let's talk about omissions. You heard the testimony of Greg LeMond, and you heard the testimony of Floyd Landis, and Mr. Landis characterized that as, He said I admitted to him, and I say I never admitted to him.

In response to that, the fact that he considered that Greg LeMond heard him admit his response to that, was to threaten Mr. LeMond in a Web posting that if LeMond ever used the word "Floyd" again that he was going to tell the world his secret that he had been sexually abused as a child. Innocent people, people who base their decisions on principles, people who make the right decisions, don't do that.

The blood results? You have the exhibit. It's something that USADA has been asking for for quite some time. You can see from the exhibit that, of all the tests

registered, it's his highest hematocrit; it's his highest hemoglobin; that the result of 48-percent-plus hematocrit would have been over the -- what Respondent said would be the cutoff for the Phonak team, of what he thought was 47.

But there's only so much reliance you can put on that under the circumstances because, in the normal course of things, if USADA would have gotten this document in a timely fashion, like it asked, what we would have done is gone back and checked how those instruments were calibrated, whether they were the same instruments, and then make an evaluation of the significance of the difference of those results.

Standing here today, we can't tell you what, if any, significance to place on that, because when Denise Demir turns over the document at the end of the hearing, there's no way you can go back and check that.

Big picture: As you read through Respondent's briefs in this case and you hear the arguments that have been made, the technicians at the Paris lab have been alternately called either incompetent, on the

one hand, or skilled, evil geniuses on the other. What I think Respondent would like the Panel to believe is that they're both.

Now, it sounded like from Dr. Davis' answers to Mr. Suh's questions yesterday, when Mr. Suh was trying to ask Dr. Davis couldn't they go down and look at the delta values and then make their baseline adjustments and peak starts and stops based on that. Dr. Davis was pretty clear: Yeah, I watched that, but that didn't look to me like what they were doing. I hope the allegation has been put to bed, even by Respondent, that anyone in Paris was trying to manipulate results to get anyone.

I think the Panel has had the opportunity to hear for a very long time from these witnesses and to judge their credibility. They take great pride in their work, and they are not the sort of people that would try to hide anything or to try to tamper with results.

That's in contrast to what we saw on the part of Respondent's business manager, who did try to tamper in this case, tamper with a witness in this case, and you heard Mr. Landis' response to that, and the actions that he took

or didn't take, and the timing of those actions. And you can be the judge of that relative credibility.

The answer in this case is relatively simple. The science is solid. Mr. Landis had exogenous testosterone in his Stage 17 sample; and in an effort to win at all costs, he cheated the rules of cycling and he got caught.

Thank you.

Oh, there was one other point.

One of the other issues that was raised in this case, which I think is a total red herring, and that is the fact that Ms. Frelat, who did the B Sample analysis, knew that it was Floyd Landis' sample that she was analyzing. And the reason that she knew that it was Floyd Landis' sample is because in order to introduce his expert, Dr. Demir, and the two lawyers -- let's go, James, let's just get the whole thing up. It's at USADA 239 -- in order to do that, Mr. Landis wrote a letter to the French lab and told them that he would be sending these people for his B Sample analysis. So the fact that it was his sample is because he

told them.

Thank you.

MR. CAMPBELL: Mr. Young, I've got a question I want to ask you.

MR. YOUNG: Yeah.

MR. CAMPBELL: I think you'll agree with me that this doping system that we have is supposed to be in place to protect the interests of athletes. And when I look at that issue -- just athletes in general, not in particular an athlete -- and you've got a code of ethics of laboratory directors that essentially states that they can't point out the mistakes of the lab, how is that -- how does that protect the interests of athletes when they may be the only ones, given their expertise, that really knows when there's a problem?

MR. YOUNG: There's -- Mr. Campbell, there's -- first of all, that code of ethics doesn't require people like Don Catlin, Christiane Ayotte, Willie Schänzer, to come forward and support a result in a case. These are not the kind of people that would put their reputation on the line in support of some other laboratory's result unless they really believed it.

Second, as we have heard from Dr. Catlin, this is no monolith. I mean, Dr. Catlin has testified against the findings of other laboratories.

And third --

MR. CAMPBELL: And he's received criticism.

MR. YOUNG: Yeah. But he did it. And it's pretty clear that he'd do it again. He would have done it yesterday. He would do it tomorrow. Because these are people that say what they believe, as scientists.

And finally --

MR. CAMPBELL: Well, if you had a code of ethics that was a code of ethics, why wouldn't it say, you have an obligation to point out if there's a problem as opposed to say -- say, you have an obligation, really, not to.

MR. YOUNG: It could say that. It certainly could say that.

MR. CAMPBELL: Well, I think it should.

MR. YOUNG: Okay.

And the final point is, there's a

world of scientists out there. There are, for example, on the issue of the metabolic pathways of testosterone, I don't know how many endocrinologists there are in the United States. Dr. Amory isn't an endocrinologist. Cedric Shackleton may be the best, but there are a whole lot of other people out there that can testify on these issues. But I understand your point.

MR. CAMPBELL: I think it's a real problem.

MR. YOUNG: Okay. Thank you.

MR. BRUNET: Thank you. Mr. Young.

Recess for ten minutes.

(Brief recess taken.)

MR. BRUNET: The Panel's ready.

Mr. Suh, you may begin.

MR. SUH: Thank you, Mr. Chair.

First, I would like to thank the Panel for their time and consideration and attention during this long and technical arbitration. I would also like to extend the same thanks to Dr. Botré. It's been a long eight days.

At the beginning of this case, we

told you that this case was a disaster, and I believe at this juncture, a disaster is what we have proven.

As I'm going to talk about in

greater detail, we have shown errors as significant as can be in every phase of every test that supports this false positive. And I've tried to group them together in categories. I'm going to use the same categories throughout the course of this closing. They are: Errors in identification. Errors in quality control. Bad chromatography. Manual processing. Deleted data. And catchall, other ISL rule violations. And perhaps the most important rule violation is that of common sense.

What we have done during this trial is to look behind the false positive at what supports it. And the answer to what supports it is incompetence and misrepresentations. We believe that Dr. Botré himself said it best in his paper "Since it is self-evident that a wrong laboratory result apart from a merely scientific point of view can have dramatic consequences on the credibility of the whole anti-doping system, many actions have been undertaken at different

levels to guarantee the solidity of the data."

We ask ourselves, was this done in this case? And the answer is a resounding no. In case there's any question about what we stand for, let us tell you: We believe in clean sport. We believe in clean athletes. We believe in real science. We don't believe in incompetent laboratories, cherry-picked data and unreliable and inaccurate results. It hurts us all, all of us that are part of this system, and it hurts the sport if we were to rely and accept incompetent laboratories, cherry-picked data, and unreliable, inaccurate results.

When we opened this case, we promised you that we would show you this incompetence, and let us turn to that now.

As we start, just to review, the burden of proof: USADA shall have the burden of establishing that an anti-doping rule violation has occurred. The rider may rebut this production by establishing that a departure from the International Standard occurred. This afternoon you will hear about many departures from the International Standards. And lastly, USADA shall have the burden to establish that

the departure did not cause the adverse analytical finding.

The standard is that USADA must present evidence of a doping violation to the comfortable satisfaction of the hearing body, bearing in mind the seriousness of the allegation which is made.

Must present evidence. It is such a key point for us in this case. It is not enough to simply just say that the results are good.

We don't look for simple conclusions. We look for explanations. We don't look to speculation. We look to facts.

Throughout the course of this trial, as you may recall, USADA had a board, that board right there, which had simply the results. We left it up there. We left it up there as emblematic of USADA's case. The only thing that they want you to see are these results. They never wanted you to look behind what supports them.

The beginning of this case, we challenged USADA and LNDD with their army of experts to prove that their chromatograms were good, that they actually document their manual

processing, that they use proper confirmation techniques. That was the challenge that we laid down in this case. And we challenged them to prove that none of these ISL violations caused the adverse analytical finding here.

In many, many instances USADA hasn't even tried to meet their burden. What they have done is provided us with conclusionary statements. And what I would like to do now is to walk you through what we believe is the chain of errors in this case.

During this trial, you've heard a lot about science, about technology, about errors, but what was very difficult to do through the question-and-answer format that is a trial is to link these various subjects together, because they are tied together, because the issue of bad chromatography, identification, failed quality controls, manual processing, deleted data, and other ISL rule violations are linked one with another.

There is a reason why manual processing needed to be done: because of bad chromatography and because the software was inadequate.

There is a reason why quality controls failed: because of poor procedures.

There is a reason why data had to be deleted: because the quality controls failed, and because the results were incorrect.

These things don't appear in a vacuum. These things are the fabric of LNDD. These things are what cause the false analytical finding -- adverse finding in this case.

And let me emphasize, although these things hang together and they are there because one supports another and oftentimes one needed to be done because something else occurred. Any one of these broken links is fatal to the case underneath the rules that we have set forth, the rules we all operate under.

Let's talk first about failed identification. Identification: Identification is where both the T/E test and the carbon isotope ratio testing begin. If you can't identify your substances, your test is simply not worth anything, simply not worth anything. So let's talk about the very ISL violation that we talked about in opening, which is the selected ion monitoring. Okay?

As you recall, at least three diagnostic ions must be acquired in the confirmation process, and also, if you recall, when we looked at the chromatograms of LNDD Sample A, they acquired only one diagnostic ion. That's a picture of Dr. Goldberger, who was clearly an expert in this field, and he was able to tell you a reason why you need to acquire three. Because he brought an example -- he actually brought ten examples -- of other substances that lie right at that 432 ion and right at that retention time. That's why you acquire three.

Let's look at Sample B, again, a one-ion method, a one-ion method that violates the ISL. And again, comparing it to UCLA, that's what it looks like when you do it right. When you do it right, which is what LNDD could have done, what they should have done, and what they chose not to do.

And just to make the point perfectly clear, this is not a theoretic problem. This is not something that we can just brush off and say, Well, close enough. It's okay. We of course know that that's testosterone. We of

course know that that's epitestosterone. And we have proof of that in this case. Because, as you recall -- and by the way for the Panel's reference, on each slide, there is a number at the bottom. The U stands for USADA, the L stands for LNDD, et cetera, G stands for -- and that's the page reference for each of these exhibits.

On USADA 54, you'll see that what LNDD did was that they identified a compound that wasn't even there, deuterated androsterone. Deuterated androsterone does not appear in the T/E testing phase. It appears in the IRMS testing phase. And one of the reasons why this occurs is the failure to use proper confirmation techniques.

To say that you can guess or be close enough is a direct contradiction of the ISL. And throughout this proceeding, USADA did not even try to prove the confirmation -- the proper confirmation of the T/E results. They never did that. Instead, what they did was, they provided to you summary chart after summary chart of longitudinal studies relying on this data. Again, the constant theme of providing

you with the results but not what supports those results and not following the ISL in order to legitimately use those results. Just the results, not what underlies them.

According to the WADA rules, all this Stage 17 T/E results are invalidated; every single longitudinal study in this case that relies on these T/E results that you have just seen can't be relied on, because they never produced any evidence that they did the SIM technique and that it would, in fact, have had -- that their violation of the ISL didn't have an impact. Frankly, it wasn't even really addressed.

Their response has always been, Well, it's just corroboration. Well, it can't be corroboration if you don't follow the rules, and that's what they would have you believe. Every single Stage 17 T/E test is unreliable. It's out.

Furthermore, when you think about it, because they didn't follow this rule, this case shouldn't have even proceeded forward to the IRMS phase, the testing phase, but it did. And let's talk about the identification problems in IRMS.

What we learned during the course of this trial is, as the Panel has become aware, that there are two steps in the GC IRMS phase. There is the GC/MS chromatogram which is generated to identify the substances in question. The substances in question are the ones that are being used to generate the results that have been sitting up here on this board all the last nine days -- or eight days. Without proper GC/MS chromatography, you will not be able to identify the substances.

So let's go to step two. At step two, the IRMS chromatogram determines the isotopic value of those substances. Then you must relate the peaks from steps one and two by either retention time or relative retention time. That's that ISL, that rule, that's set forth in WADA technical documents, and it lays it out. It gives you ranges in which it needs to appear.

Now, let me talk for just one minute about whether or not this is the proper method. We know it's the proper method, even though Dr. Brenna just this morning tried to suggest that it didn't matter. You know it because it appears in their brief.

At USADA's brief 148, it says: "You add an internal standard to the blank urine to calculate relative retention time of the molecules analyzed to make sure you are looking at the right peaks."

And also, the LNDD technician said the same thing. In her -- and by the way, these numbers at the bottom are the rough transcript cites, for your reference:

Answer: "The internal standard allows us to calculate the relative retention time of the molecules analyzed."

"Is that to make sure that you are looking at the right peaks?"

"Absolutely, yes, that."

And, of course, Dr. Brenna himself:

"Well, they have retention times that match on previous -- within the previous GC/MS, and the GC/MS delivers structural information like aliquots and so forth, which tell us which is which."

They have admitted that relative retention time is the way you identify your

compounds.

And, of course, we have produced a

table which shows you exactly what the relative retention times are. And the relative retention times are an order of magnitude of five to six percent off of the applicable -- well, five percent, four percent, sometimes close to six percent off of what they should be as set forth in the ISL.

Again, just to make sure that this graph is completely clear, blow up one quadrant, which shows you for the target analytes -- andro, 5-alpha, 5-beta, 11-ketio, and the pdiol -- what the percent difference is relative to the standard and that. In the GC IRMS phase, the percent difference relative to the standard in red.

And again, just to drive this point home, without being able to associate the peaks on the GC/MS phase to the GC IRMS phase, you don't know whether or not the peak you are looking at is the one you are measuring.

And we thought we would pick an example. Here's an example of a chromatogram which is of the GC/MS phase. Then we took the

corresponding IRMS phase. We put the retention time of that IRMS phase right on that graph right there. Well, where is it? It's not there.

How do you know -- and this was --

this was Dr. Meier-Augenstein's point: How do you know that that little forest of peaks that you see off to the right of the highlighted bar is the peak that you are looking for?

This case should end right here. USADA did not meet its burden. They have failed to show you that what they have been talking about for eight days was even what they allege it to be. Failed identification.

But that's not all. Let's go to step two. Failed quality control.

Mr. Young seems to miscomprehend our argument about the mix cal acetate being an ineffective positive control. Here's why. First of all, let's look at the fact that they themselves refer to mix acetate as a positive control. This is in LNDD's response to a discovery request.

And then let's look at a corresponding chromatogram, Exhibit 24. This

chromatogram is perfectly clean. This chromatogram is good. We admit it's good. That's the point. The point is that this is a pure matrix, and within a pure matrix, it is much easier to properly identify your substances and be able to properly determine isotopic values, because you don't have matrix interference.

We have never said the cal mix acetates are -- have poor chromatography. That's our point. It allows the machine to have precision. What it means is, basically, they can duplicate their efforts. It doesn't mean the machine is accurate.

To use an analogy, again, the shooting-the-rifle analogy, you could be shooting at a bull's-eye. You could be repeatedly off by six inches to the left. You could be shooting a perfect six-inch group off to the left, and that would be precision. You are being precise in the fact that you are off. But that does not mean you are accurate, because you have missed the bull's-eye. You have missed the target every single time, and that's what's happening here.

Because when you turn to other chromatograms -- now, this is a mix cal acetate for B again, another clean one. Let's just go to the next one -- you'll see that it begins to look very, very different. That urine is a dirty matrix, not a clean-solution matrix with added acetates. It's a dirty matrix. It has all kinds of stuff in it. And when you have all kinds of stuff in it, your job, as a laboratory technician, is to separate out all those things so you can properly identify it.

To say that you can properly identify and properly calculate isotopic ratio in a cal mix acetate and, therefore, you can do it in something like a dirty urine matrix, is completely nonsensical. And we have never said that. Our point is, is that this -- this cal mix acetate control that they claim is a positive control is not a positive control, because it cannot perform that function.

Let's talk about other quality controls. The internal standards for Sample A and Sample B are out of the measurement of error. And again, they're not out of the measurement of error for the cal mix acetate.

No. Because the chromatography is good, because they're clean. They're out of the measurement of error in the real sample, the blanks and the actual samples.

And let's go to the next slide.

Remember the quote from Dr. Brenna:

"We ran those standards. We also have a standard that's been added to every sample that elutes early, and that standard is further checked to determine that the instrument is running properly during analysis of every particular sample. And then there were standards run after the sets of analytes, so there were standards at each level."

Well, let's look at those standards at each level. This chart is a chart that Dr. Meier-Augenstein described to you. And again, see the mix cal acetates? Right within standard. But right when you go to the bottom there, where it goes to the blanks of the actual samples, then that's when you see that the effect of poor chromatography and the inaccuracy of instrument shining right through, out of the measurement of error. And that's the point. That's the point: That the mix cal acetates

don't do any good at all; and that when you finally try to actually measure it in the true sample, you get it out of the measurement of error.

And let me suggest one more thing to you, that we don't know. How do we know that those substances that are out of the measurement of error are even the internal standard, because the relative retention times are all off. In fact, oddly enough, LNDD might have accurately measured some other substance, but that substance might not even be the internal standard. We don't know. We don't know. But we do know that there are, for whatever reason, two out of the sequence in Sample A and two out of the sequence in Sample B.

Let's turn to some other alleged

quality control feature. We heard in their briefs that everything was perfect because the samples were -- samples were run in sequence and that the mix cal acetates were run immediately before and immediately after.

We know now, from actually looking at the documents, that that's simply not true. When we look at Sample A, we see that those are

the two data processing results pages, and we see the second mix cal acetate standard was run five hours and 14 minutes after the last A Sample. Very curiously, the same amount of time that would have allowed the laboratory to rerun the actual samples. Why? We don't know. But we do know it should have been documented, and now we also know, because we see the errors build upon each other and build upon each other, that there was a problem in this laboratory.

This is not something taken out of sequence. This is not something plucked out. If this was one error that we saw, one error here, one error there, people make mistakes. But that's not what we see here. We see a pattern of mistakes, each one necessary to cover a previous mistake which then generates a need to actually do something else, which is a violation of the ISL.

And notwithstanding this, both

Ms. Mongongu and Ms. Frelat sign off and validate the instrument performance verification sheet.

Let's talk about Sample B. Same thing; same claim: Run immediately -- or

immediately after -- immediately before and immediately after. Was it? The answer to that question? No. Four-hour-forty-minute time gap. What was happening in that time gap? We don't know. But we do know that, again, sufficient time to rerun samples to get the result you want. And again, despite the fact that it was not done in sequence, both Ms. Frelat and Ms. Mongongu signed off.

Those are the things that USADA has pointed to and LNDD has pointed to as their quality control. That's not a quality control. That's a fraud. That's not a quality control.

Let's talk about bad chromatography, our third one. Bad chromatography is something we raised in our opening. Let's look at the ISL: "The ISL requires the method should avoid interferences in the detection of the prohibited substances or their metabolites and markers."

There is bad chromatography throughout this case, and good chromatography is required. Let's just take a look at some of those chromatograms. Stage 17, Sample A, you see the epitestosterone. Dr. Goldberger said, It was an embarrassment. Sample B, pretty much

the same. In Dr. Goldberger's analysis, in fact, I think that he said that Sample B was even worse.

What are the indicators of poor chromatography? They're downward-sloping baselines, unresolved baselines, overlapping and co-eluting peaks and poor peak separation. What's an example of that? Again, as we know from Dr. Meier-Augenstein, in a situation where you have poor chromatography and you don't know what the substances are, you don't know what impact it may have.

Let's look at Stage 17 Sample A, fraction 3. Fraction 3 is the one with the diols in it, the one with the 5-alpha, the 5-beta and the pdiol. We heard that -- from our experts, the Sample A fraction 3 and the Sample B fraction 3, all no go.

Stage 11, Sample B, fraction 3: similar problems.

Stage 15, Sample B, fraction 3: similar problems.

Stage 19, Sample B, fraction 3: similar problems.

Stage 20, Sample B, fraction 3: similar

problems.
What are the effects of bad chromatography? Well, we saw a very helpful study from Dr. Meier-Augenstein in which he analyzed what can happen to the final per-mil values. This is a chromatogram that has many of the same problems that we see in the chromatogram in Mr. Landis' sample -- samples that we just reviewed. And then he produced a chart for us which lays out what can happen when those are rerun. And you can see, we just picked out three by way of example. The numbers jump up and down: 2.5 to minus 24.5 to 1.9, minus 25.6 to minus 27 to minus 5.1.

And as applied to this case, Dr. Meier-Augenstein, who could forget this moment? When he was asked to calculate what even a very small peak with a per mil with a very negative value of minus 70, and as you recall, he also said that that's a very negative value for a naturally occurring substance. And Dr. Meier-Augenstein made clear, it could be -- it could be a chemically produced substance, an unnatural substance, with a -- with a carbon-13 depletion of up to minus 500 or 700. You just

don't know. That could have come from the column; it could have come from residue; you don't know.

And in this instance, he was asked --

Todd, if you'd go back to that one.

-- he was asked to actually calculate what final impact that may have, and that final impact was minus 2 per mil. I think Mr. Young, on cross-examination, thought it was going to be a much smaller number, but it turned out to be something very significant. And that's our point: You don't know. And that was a guess. It could have been minus 70. It could have been minus 80. It could have been minus 100. We don't know.

And that's why, when you do these tests, you do them properly. You do them according to the ISL, because you cannot assume that the athlete is guilty and then back into it with the science and presume everything was done okay. You can't just put up the board and say you are done.

Let me show you this: The two-over-one trace. We have heard a lot about it. The reason why the two-over-one trace does

not necessarily provide the resolving power that Dr. Brenna repeatedly alleged that it does, was explained to you by Dr. Davis, the very person who worked with, built, sold these machines, and now actually developed and designed and has his own company selling instruments. And Dr. Meier-Augenstein explained to you why it does not have the resolving power that you would expect just from listening to Dr. Brenna's testimony.

And why is that? Well, what Dr. Meier-Augenstein did was, he showed you this following chart. This following chart shows you what is actually happening in the background. The background is varying. It is sloping upwards. And when the background is sloping upwards, the two-over-one trace may not account for that. And if that's the case, you cannot assume that the peaks are well integrated. You just can't. And, in fact, when Dr. Meier-Augenstein ran these values, these are the values that he came up with.

Once again, USADA did not meet its burden to a comfortable satisfaction. Sure, they asked questions. Sure, they speculated

that maybe it didn't cause a problem. Sure, they got their WADA lab head to come up and say, Oh, look, the peak is really small. I can tell you it's very, very small. It wouldn't have an impact. That's speculation. That's not science. That's lawlessness; not rules.

Let's go to the next subject: Manual

processing. Again, the very same issues we brought up in opening: There is no changing defenses here. We'll talk about that allegation in a minute. No changing defenses. Same ones we brought up at the beginning; same ones we're ending up with today.

The ISL requires data recording, recording of processes and changes to reported data with an audit trail. Why is that important here? Well, because, in this case, in this instance, the ISL prohibits exactly what was occurring here. And why is that?

Well, we had a raw demonstration today because, by way of example, when manual processing is done, and here you see those same drag lines that were demonstrated by Dr. Davis. When those are moved around, you can see the numbers change, and they change dramatically.

That's personal judgment being used. That instrument, that software, has a function that allows you to capture this data. If it doesn't matter, and it was done right, why not capture it. Especially when it had such a big impact on the result. We submit it's a violation of the ISL, and we should not stand for it. USADA did not meet its burden here.

Let's talk about the next step: Deleted data. Why is it necessary to delete data? Well, let's talk about which ISL provisions apply. Again, the first one, 5.2.6.1: "The laboratory must have documented procedures to ensure that it maintains a coordinated record."

And down below, in General: "The record should be such that in the absence of the analyst, another competent analyst could evaluate what tests had been performed and interpret the data."

Another competent analyst could evaluate what tests had been performed and interpret the data. It also, of course, is that same data entry, ISL before.
The data destruction and deletion in this case

is shocking. It is wrong. There is no reason to do it if what is being done is right. We have talked about hiding things. Why hide them if everything that's been done is correct? And, of course, we see it first in the batch data processing result, when we see the data that we have actually been given in the sequence doesn't even match this summary page.

You could switch back and forth, Todd, again to the first slide that we just looked at.

Here is the summary page with a data point at minus 32.22. And if you go to that mix cal IRMS page, that number is not the same. That number is not the same because that test was not run in sequence. That test was cherry-picked out of some other sequence, and we don't even know what it is. And we're given that to support quality control. That's what we're given to support quality control. Outrageous.

Is that just in Sample A? No. It's in Sample B, too. Same thing. The batch data processing results, looking at the values that are summarized there and, again, the values are

different. Why are they different? Well, because that -- that data processing results page came from some other sequence. We don't know which sequence. We don't know what that's about. But again, let's see, and here is another example for Sample A.

But again, that's not all. This is a constant pattern and practice for LNDD, and we know it because we got the log files, which we almost didn't get. And let's go ahead and look at the log files. This is a summary. We spent many days reviewing them with the technicians.

Here is the summary of what was deleted and what was saved. Again, deleted, saved. Turning to the next slide 1057, 1058. Again, deleted, saved. Deleted, saved. Same is true of Ms. Frelat. Deleted, deleted. The next day, more deletions. The next day, more deletions.

This is destruction of data. We have had the technicians come in and recall from their memory -- sometimes they could; sometimes they couldn't -- what occurred. Sometimes they recalled that they did it because the results, quote, were not correct. This is not science.

This is not right. This is not what the rule allows. There is no interpretation of the rule which supports this conduct. USADA did not meet its burden.

And again, a chain. This data had to be deleted because the quality controls were failing. Because manual processing was occurring. Because bad chromatography existed. Because the instrument was nonlinear.

Sometimes we know these things for sure; sometimes we don't. But we do know that there were problems that contributed to each one of these components and that these problems could not be represented in the data, because, if they are, it wouldn't look nice and neat and clean as we're presented in USADA's brief. You remember their brief. All the little check marks that everything was done perfectly.

The last category is other ISL

violations. There are two other ISL violations, and we put strange practices kind of at the bottom as a catchall for all sorts of other strange practices. And let's talk about chain of custody first.

Chain of custody: "Requires the

documentation of the sequence of persons in possession of the sample. It's generally documented by a written record of the date, location, action taken and the individual performing an action with the sample or aliquot."

Going to the next page. "The laboratory internal chain of custody is documentation that records the movement of samples and sample aliquots during analysis. Within the laboratory, the laboratory chain of custody shall be a continuous record" -- a continuous record -- "of individuals in possession of the samples or sample aliquots." And let's look at what was happening.

This part, the chain-of-custody form, which is really nothing more than a summary form, there is no documentation of an intralaboratory transfer. It simply doesn't tell you. And, once again, what we have to rely on is memory of how it got from one person to another within the laboratory.

Ms. Mongongu testified that she gave the bottle to Operator 18 at 11:25. Where is that? It's not there. What do we rely on? We

rely on her memory. And we're going to get to her memory in a minute. Let me say this, before I talk more about the technicians. We have never claimed that they are evil geniuses. Frankly, we think they are neither. We don't think they're evil. They're certainly not geniuses. This is incompetence. This is a lack of training. This is a lack of procedures within the laboratory to ensure that things are being done right. This is a lack of following the ISL. They're not evil geniuses. There's nothing about these people that would ever suggest to us that they were evil or bad people.

It does surprise us that a technician who only six months into being able to operate the instrument by herself was testing the B Sample of the Tour champion for the 2006 Tour de France. It does surprise us that her supervisor never conducted any real training of her or continuing training except for answering a few questions here and there. Not evil geniuses. Not evil. Not geniuses.

Next slide.

Chain of custody. This is the principle of chain of custody from the Landaluce case. "The panel must watch over the respect of fundamental rules, considering the implication that its decision could have on the reputation and therefore the career of the athlete if a disciplinary sanction were to be pronounced upon him."

Let's talk about something we heard a lot about, which is the rules regarding the preparation of laboratory documents. Let me start out by saying something about all of the cross-outs and improper procedures. We don't believe that the samples were somebody else's samples. That was never our point.

The point of the errors that we see here is incompetence. It's sloppiness. It's a lack of care. When Dr. Amory or Dr. Goldberger tell you that, in their experience, when you have lab numbers not matching up or sample numbers not matching up, they throw the sample away to be sure. That -- that is quality control. This is evidence of a lack of care, a lack of competence of just doing whatever you want to do because, well, no one's really watching over you.

So let's take a look at some of

those. You remember this page. There's one of these improper -- improper handling of these errors. 1, 2, 3, 4, 5, 6, 7 -- seven errors on one page. What does that tell you? What does it tell you about the quality and the training? It tells you it's no good.

Let's look at the next one, just another example. Another handwritten overwrite, just another example of the same thing.

We want to show you something that is the most disturbing thing of all, though, which we haven't had a chance, largely due to time constraints, to bring to your attention, but we want to show you this. And before I show this to you, I would like to remind you that in March, or early March of this year, there was a discovery dispute about getting additional documents. And eventually USADA was ordered to have LNDD produce them, and we got them. And this is one of those documents that we received in March. Okay?

One of the documents we wanted to get was a record of the preparation of reference solutions. So let's put that up there. Now, we looked at this page, and it looked all okay when

we first got it. And then we sat around and looked at it a little more carefully, and we saw some very strange things about it.

This is supposed to be a document, a living document, a document that contemporaneously records the reference substances and solutions and their preparation. And if you go to the far left-hand corner -- column, you'll see --

Not that one, Todd. Not yet. The left-hand side.

There's a date prepared, and it goes January 19th, 2006, February 2006, March 8th, 2006. It's supposed to be a contemporaneous log. First thing we noticed is, for a contemporaneous log, all the handwriting looked exactly the same over the course of the year. Okay? But here's something we found that was even -- I mean, frankly, if it weren't awful, it would be funny.

Let me ask you this question. How often in March of a year, do you accidentally put the previous year date? In other words, it's 2007. And you write -- or it's 2006, and you write 2005. The year just changed. I do it

all the time. Sometimes I'm writing a previous year as far as in May or June or July. One thing I've never done. I've never written the subsequent year; for example, in March of 2006, I may write March of 2005, but I certainly don't write March of 2007. So let's look at what we see up in that upper right-hand column.

Look at that. March, what looks like 6 or 16, and then look: 2007 with a 6 overwritten in it. March 6th, 2007. This document came to us right in the beginning of March of 2007. Now, we don't know how it got this way. But in common experience, would you actually write the following year in March of 2006? Would the handwriting be so similar through this document? We would submit to you, this is a fraudulent document. This was made up in response to our request. I think things like this should concern us all. Things like this should concern us all.

Let's talk about strange laboratory practices. Here's what we heard. Chain of custody can be done orally. You heard Ms. Frelat say, to her, a significant difference is 1.5 to 1.6 per mil. I was calling it for a

while, her own personal measurement of uncertainty. And it certainly was something Ms. Buisson said she had never taught her.

We heard this over and over again: I can remember what I did many months ago, and it was all fine. Then, at the same time, you heard, I can't remember which year I last had problems with the IRMS machine.

You heard things like: I have a Ph.D. in IRMS, but I don't do any continuing training of my technicians. You've heard things like that, even though the IsoPrime instrument is certainly not an easy thing to operate, they didn't have the manual for it. Then they left the lifting rings right on top of the magnet of the MassLynx machine. Mr. Young rightly pointed out it's a MassLynx machine, but that's the same machine that ran the retesting result. They ran the IsoPrime at the wrong Penning pressure. There was a lack of familiarity with the software. There was a lack of familiarity with the hardware. The software was over ten years old; that the IsoPrime was not linear; that the linearity was not even done according to their own SOP.

We're not saying that any one of these things alone, taken out of context, is something that should invalidate an adverse analytical finding. We're bringing them to you because they paint a picture of how we got to this chart that USADA saw fit to leave up all week.

This is the kind of thing that underlies the results. Some of the things are ISL violations. Some of them may not be. But let's just go back to that principle of common sense.

Do you have now with you a comfortable satisfaction that everything was done properly, that it was done right, that the results are accurate? Do you feel it? Because we don't.

Let's talk about what happens when all of these errors are made. What happens? We get errors in, we get errors out, and a lot of talk has been -- a lot of time has been spent on some of these summary charts. Let's turn to the first one. Now, even if you were to ignore, as USADA has done, the violation of the SIM ISL, let me just ask this question. Look at the T/E

values. Now, let's remember that this is the same sample; the A and B Sample is the same urine. It's not urine from two different days. You know, Mr. Landis provided a urine sample. They split it into aliquots and they tested it.

Now, you don't even have to be an expert to know that at least some of these numbers are wrong. You can't have a T/E ratio of 4.9 and 10.7 and 11.4 and 5.1 and 10.9 and 11, 11.1, 11. This is almost a test of the reproducibility of their results. They failed that test. Same with the testosterone.

It's not even as if all the testosterone numbers line up or even all the epitestosterone numbers line up. Here is some evidence for you that the SIM violation and the other problems we see have a result. This is not a theoretical thing we're talking about. Garbage in, garbage out.

Let's go to the next chart. Look at these inconsistent processing results. The reason we wanted to show this difference is to show -- to show you what happened when the reprocessing occurred. Again, look at these numbers and their variance: 5-alpha, from the

original to the manual. These are the ones that concern us most. These are the ones that -- this is a process that was actually used to generate the results that we're looking at. And what we have heard from USADA is, Well, don't look at those. Don't look at the man behind the curtain. Look at just the ones that matter that support our results. Let's cherry-pick those out. But, as you recall, these -- this result is a result done in sequence. It's a fraction A, it's a fraction 1, or fraction 2, or fraction 3. The quality control, it's all done in one batch by the same technician.

The person who made the mistakes on any one of those in that sample is the same person that performed the sample that they are -- USADA's asking to pick out of that chart, and just say, Just rely on this one. That's invalid. That's not science.

Oh, and one more thing. We do find it very curious, of course, that when you auto-process these results, they are in excess of minus 3. Well, if you -- we have heard conflicting testimony about USADA -- whether or not USADA and LNDD wish to apply the .8

measurement of uncertainty. I think it kind of depends, to me, whether or not it suits their position at any given time.

But it's certainly troubling that the number is so far over minus 3, or is what they are saying that the use -- that the lab technicians have provided in the pooled urine, were taking testosterone? I don't think so. Invalid. Not reliable.

Let's go to the inconsistent retesting results. You heard from Dr. Amory that all of these results don't make sense for several reasons. First of all, you see the T/E numbers are inconsistent with the adverse -- or I'm sorry -- the supposed adverse analytical finding on the IRMS. Secondly, you see the fact that the -- for almost all of the results, with the exception of the 7-13 result, that the 5-alpha and the 5-beta are not moving together, and they are not moving together in a way which defies what all the peer review literature says.

And the last one -- this is the most curious one -- under USADA's theory, Mr. Landis would have had to take testosterone for the last stage, the parade stage. He would have put on

testosterone gel just to make sure he could have gone to the Champs Élysées, ride around the Champs Élysées in a stage which was not going to be hotly contested.

Let's look at a quick summary of how testosterone really breaks down: 5-alpha moves with 5-beta, and in all of these peer-reviewed studies, the maximum difference between 5-alpha and 5-beta is minus 2.5 per mil. When you look at the summary chart, you'll see that it is in excess of 2.5 per mil. There is absolutely no evidence that the use of testosterone gel can create a profile like we see in this case. Absolutely no evidence. Invalid. Invalid. Not science.

Let's take a look at this last summary chart we have heard so much about. This is the T/E longitudinal test. Once again, the only thing to say about this -- well, I mean, of course, the T/Es really shouldn't be applied because they failed the SIM analysis, SIM requirement. But Dr. Catlin, USADA's own expert, said, "There is no sign of steroid use until you get to the box."

Does that give any of us a bad

feeling about what's going on, that the results are self-fulfilling? It's invalid.

At the beginning of this case we asked -- we ran this little hypothetical. In order to believe USADA's case, Floyd, knowing that he would be tested while in the lead or attempting to gain the lead in the Tour -- we know that because he testified to that -- took testosterone, a drug that does not have a beneficial effect during a race like the Tour -- Dr. Amory confirmed that -- in an amount too small to raise his testosterone level above that of the average American male.

We know that, from the test results, that it entered his system and was metabolized in a way contrary to the known science of testosterone. We know that from the peer-reviewed studies of Dr. Amory.

That in four out of the five tests alleged to be positive, his screening tests were absolutely normal. We know that from the summary chart.

That in the five confirmation tests the values vary in a way contrary to the known science about testosterone. We know that. We know that because we can look at the peer-reviewed studies.

We know that in order to believe USADA, that when the electronic files from Stage 17 were processed, the results were entirely not reproducible, notwithstanding the many attempts by the technicians to reproduce them.

And lastly, lastly, we would have to believe that all of the ISL violations and all of the problems we have seen utterly did not matter; that they were moving in two parallel tracks; and you have all of these problems with quality control and chromatography and identification, and co-eluting peaks, and the whole list we have been talking about; and that with all of those things that were going on, the lack of skill, the incompetence, the deletion of data, one thing after another, somehow, a miracle, a miracle that they did not impact the summary chart that USADA has left up all throughout this trial.

Let me address the contention that there has been a shifting theory in this case by Mr. Landis. That is utterly not true. The things that USADA has pointed out were things

that we're concerned about, which we believe justified further discovery. We could not craft a theory because we did not have facts. We let you know everything we knew at the time in order to get the discovery. A lot of the discovery we didn't get until very late. We didn't get depositions. We cannot be blamed for bringing to you theories that we have discovered from a review of the evidence on the eve of trial.

Let me tell you one other thing that we have seen: It's their shifting theory. That before the hearing, what we have seen is that all of LNDD's findings and procedures, they're all perfect. Everything is great.

Now, during this hearing, what do we see? We see cherry-picking of data. We see LNDD finding their procedures did not violate the ISL. And then, lastly, something we have heard repeatedly over and over again: The results may not be perfect, but they're good enough.

These are all ugly arguments. But let me tell you what I believe is the ugliest argument of all. Ugly, ugly, ugly. And that is -- the argument is that somehow the ISL doesn't

apply to these violations. You heard it from Christiane Ayotte. Oh, it doesn't apply. Don't worry about it. If the ISL does not apply to the violations that deal with identification and the ability to properly identify and quantify the isotopic ratio in this case, then the ISL is a fraud. How can you say the ISL doesn't apply to what we see here today? It does. By its plain language. Ugly argument.

Let me show you the reasons why, some examples of why, USADA has had to shift its theory, not us, but USADA. Here's what we see in their brief: "The mix cal acetate, blank urine, and mix cal IRMS controls were run minutes before, minutes after."

Is that true? No. We know it's not true from this sheet right here.

Next: "Because the IRMS instrument was accurate in measuring all of the controls, the results for Respondent's samples which were analyzed by the IRMS instrument at the same time must be accurate."

Not true. Look at that.

"LNDD results for Respondent's A and B Samples must have been accurate because all of

the controls run at the same time can be proven to be accurate."

Again, another false statement.

"Respondent's sample is positive by any criteria."

Not true. We know that from Dr. Catlin's testimony when we went over his positivity criteria.

"The co-eluting peak on the screen test was largely eliminated on the confirmation."

Not true. Dr. Goldberger tells you: Not true.

In their brief: "When WADA has established a positivity criteria, they, WADA laboratories, are not expected, let alone required, to conduct their own study to validate their criteria."

Not true. Even Dr. Ayotte has limits.

In a request for production of documents: "All documents that relate to creation and accuracy of the background subtraction method used by LNDD in the IRMS test, the response background subtraction is

embedded in the instrument's software which is proprietary to the instrument manufacturer."

LNDD has no separate documentation. Not true.

Well, first of all, they have an SOP that they've been referring to all along. But secondly, secondly, we know that they do manual processing all the time all the way down to things that really don't even seem to matter.

"When the instrument is operating

properly, a green light is displayed on the instrument. If the operating pressure becomes too high, the light turns yellow as a warning, followed by red, and issues a shutdown."

Not true.

That light doesn't change color. And again, why is this important? This is important because it shows incompetence. They don't even know how this machine works.

"There is no WADA requirement to document the location of a bottle sample."

Well, not true.

Interrogatory 6: "Please confirm that no post acquisition corrections of the data have been performed by LNDD in relation to

Sample 995474 other than those shown in the laboratory document package."

LNDD response: "Confirmed."

How do we know that that's not true? The log files. Not true.

"Reports andro 11-ketio of 3.51 as positive." Not true. Look at the SOP.

"IsoPrime user manual instructing the user to ensure that the Penning gauge reading is less than 5E minus 6 millibars." Not true. It's right in the manual.

"The enlarged presentations of the B Sample confirmation of epitestosterone and testosterone peak: Although considerable background is still visible, the confirmation chromatograms show a better peak shape." Not true.

Interrogatory Number 8: "Please explain with mathematical formulas how LNDD performed and applied background subtraction to Sample 995474 and related controls."

LNDD response: "Background subtraction was embedded in the instrument software, which is proprietary to the instrument manufacturer." LNDD has no separate

documentation.

If I were them, I would have shifted my theory that everything was done perfectly.

Let's talk about something that Mr. Campbell raised: the WADA code of silence. And let's -- let's juxtapose two very interesting things that occurred right here in this courtroom. The oath: Do you solemnly swear to state the whole truth and nothing but the truth to the matters put before you. The oath. We give it all the time in these kinds of proceedings. Let's juxtapose the WADA so-called code of ethics.

Now, let me ask you a question: Once a witness is sworn -- forget about before the witness actually appears -- once the witness is sworn and is asked a question, the answer to which may actually help an athlete, what happens then? Isn't that really the nub of the problem?

Mr. Young says, Well, these people didn't really have to come. They wouldn't have come, but once they do come, on cross-examination when we ask them a question, the answer to which may help the athlete, how are they going to resolve telling the truth and

not calling into question the integrity of the individual or the scientific validity of the work performed in the anti-doping program?

It is offensive to call this a code of ethics. This is a code of silence. And we saw it here. Right in this courtroom. Dr. Ayotte.

I've actually -- I think the Panel should look and think carefully about this quote: "When athletes and rich American lawyers fight against the validity of tests and controls, we better be creative."

I think some people laughed about that. It's not funny. What can it mean? It means we're going to lie. What else could that mean? "We better be creative." Deeply offensive.

And we know from Dr. Catlin, when Don Catlin testified on behalf of Zach Lund --

by the way, Dr. Catlin in the Zach Lund case did not testify against an adverse analytical finding. He testified about a sanction, a sanction, and he testified at USADA's behest. Even then, WADA's director of science contacted him to express his displeasure at testifying

against WADA's interests. Code of silence.

I would like to skip ahead and talk about two things, two witnesses that were called and actually discussed at great length by USADA: Joe Papp --

That's slide 171.

-- and we have referred to him as USADA's andrologist. He's the one that they called to testify about the effects of testosterone. Here's the man who took so many drugs he didn't even know what they were. USADA has attempted to associate him, his practices, and Mr. Landis. I respectfully submit that Joe Papp is nothing like Mr. Landis. Bluntly, Mr. Landis has a gift that very few people possess. Even with all of these drugs, Joe Papp has not even been able to enter many of the races that Mr. Landis won, not the same person.

And admittedly, a drug trafficker? A trafficker? A person who is subject to USADA's sanction? A lifetime ban? Haven't heard anything about that. This is their lead witness on andrology. They could have called a real andrologist. They could have called the doctor that was in the article, the German

doctor. We didn't hear about any of those witnesses.

Greg LeMond. The first thing to remember about Greg LeMond is that what he said was not an admission by Mr. Landis. We had the opportunity to cross-examine him, but Mr. Landis explained to you the full text of what he had talked about in that call, which was, I didn't do it.

We're shocked and we feel terrible about what happened with Mr. Geoghegan, Mr. Landis' former business manager. It was wrong. It was disgusting. But, there should be no simple guilty by association. And ultimately, that has nothing to do with the science underlying this case.

I would like to wind this up with the following thought: In reality, at the end of all of this, this is a case about conscience. In good conscience, can we, all of us here who have been together for nine days now, the lawyers for the athlete, the lawyers for USADA, the Panel members, Dr. Botré, can we confirm, and thereby approve, of LNDD's work in this case? Can we then use that confirmation to strip Mr. Landis of his Tour title, destroy his reputation, and destroy his life? Is this the kind of work that all of us, as part of this system, can be proud of? That's the real question.

Because what we do here matters not just to Mr. Landis. This case, in many ways, is about much more than Mr. Landis. This case is the first case to comprehensively challenge the systematic failures of an anti-doping laboratory to follow its own rules and procedures in the ISL on issues that go to identification and calculation of the isotopic ratios that support the false adverse analytical finding here.

This case is much more than about Mr. Landis. It is about doing what is right, what is fair. It isn't just his day in court. It is a day in court for every athlete that LNDD has accused. It is the day in court for everyone who has been part of this system. Because right now, back at LNDD, just before the 2007 Tour starts, we may very well have lab technicians who have been working for six months, with no real training from the supervisors, who think the lifting rings still need to be there, who think the chromatography is all fine, who don't have an IsoPrime user manual, who are working with ten-year-old software, who can't properly identify the substances. On and on and on.

In reality, this is a case about our conscience. In good conscience, can we approve of this work? Can we approve of deleting files? Can we approve of changing data when they aren't correct? Can we approve of not even being able to identify the substances which are alleged to be adverse and support the adverse analytical finding? Because that's what's coming for the 2007 Tour and the 2008 Tour and the 2009 Tour because, somewhere out there, there are athletes who have trained their whole lives, their whole life, for this moment, their moment. Whether or not they win the Tour or they lose the Tour, or they're simply competing, every athlete deserves to be treated better than this.

Upon a fair review of the evidence, we believe that you'll agree with us that Mr. Landis committed no anti-doping offense.

Thank you.

MR. BRUNET: Thank you, Mr. Suh.

Mr. Young, you may proceed right now.

MR. YOUNG: Thank you.

Very, very quickly. On the chain-of-custody issue, you'll see in our brief, the table that lists the pages and the documentation package and other evidence produced that tracks down the chain of custody.

My only other observation would be this: When the facts aren't on your side, you accuse people. You accuse them of lying. You accuse them of fraud. You accuse them of lawlessness. You accuse them of trafficking.

The Panel's heard the evidence. We'll trust the Panel to be its own judge of credibility of the witnesses on both sides in this case.

Thank you.

MR. BRUNET: Thank you, Mr. Young.

Mr. Suh?

MR. SUH: Nothing further. Thank you.

MR. BRUNET: Can the parties provide the Panel with a copy of both your respective presentations, please, either in electronic or

paper format?

MR. SUH: Absolutely. We will do both.

MR. YOUNG: Both.

MR. BRUNET: It can follow later.

It will not be entered as exhibits, but the Panel would like to have a copy of those copies. Thank you.

And do we have a sense of when the Panel and the parties will be provided with an official final copy of the transcripts for the hearing? Have you had discussions with the court reporter, or maybe the court reporter would like to take the stand and testify to the --

MR. BRUNET: After nine days of French witnesses, I hesitate to ask her.

THE REPORTER: Two to three weeks, but I'll try for ten days.

MR. BRUNET: So two to three weeks?

MR. CAMPBELL: I would like the parties to provide a findings of fact and conclusions of law for the Panel.

MR. SUH: We'll do so. Mr. Campbell, by what date would you like us to

do that?

MR. BRUNET: Maybe the parties can suggest.

MR. CAMPBELL: Well, it would be at least probably -- I want you to do it sometime after you get the final transcript, so can you suggest a time that you will be comfortable with that?

MR. SUH: How about one week from the time the final transcript is produced?

MR. BRUNET: Mr. Young?

MR. YOUNG: I think -- I mean, we will obviously do what the Panel wants. And if that is the joint desire of the Panel, that's what we'll do; but, I mean --

MR. CAMPBELL: That's the joint desire. So how about the timing?

MR. YOUNG: Well, it will probably take us a couple of weeks after we receive the transcript, would be my guess.

MR. CAMPBELL: You want two weeks? Mr. Suh, do you have a problem with two weeks?

MR. SUH: Two weeks is fine.

(Panel conferring.)

MR. BRUNET: We were just having a

discussion, that you probably heard, about the fact that, after today, the hearing will be adjourned. It will not be closed according to the rules, and the closing of the hearing will be done by the Panel at a further date that has not been defined yet, but will obviously be after the filing of the documents and the final documents by the parties.

This is unusual in arbitration, but I have -- I would like to thank a number of people, because this has been a long arbitration. It's been referred to as probably the longest in anti-doping.

I would like to, first of all, thank Pepperdine University personnel, Dean Kenneth Star, Maureen Weston, and as well our assistant, Brian Lange.

I would like to thank the AAA, the American Arbitration Association, on the fine services of Michael Powell and Jeffrey Garcia, Carmen Frobos, back in Atlanta, and Linda Abaya.

I would like to thank our media consultant, as well, who was very helpful in assisting us in handling -- with the handling of the media issues, Susan Polakoff.

And I would like to make a -- pay a special tribute to the lawyers on both sides, who have had to work under extremely challenging circumstances, and who've had to analyze data that has been extremely complex, and that, to a very good level, have managed to make that data more accessible to the Panel and to allow us to analyze it in a way that will help us to reach a decision.

So thank you very much. The Holme Roberts and Owen team, thank you very much; and the Gibson Dunn and Crutcher team, and more particularly, Mr. Richard Young, Matthew Barnett, Jennifer Sloan, Johncie Wingard, and

Mr. Dunn. From the Gibson Dunn team: Mr. Suh, Mr. Jacobs, James Hough, Daniel Weiss, Paul Scott.

I would also like to thank, also, Dr. Francesco Botré for having taken a lot of time off, not just for the Paris analysis, but also for this arbitration hearing. Dr. Botré has been very helpful in helping us understand some of the issues. But both parties have put them to us in such a beautiful way, that's helped us, but you have done most of the work.

I would like to thank, also, the two legal assistants that have had the privilege to attend the hearings, Rosalie Brunel, in the room here, and the previous legal assistant, Andreas Zagklis.

Thank you very much to Debbie Resling, our court reporter, who's done a fantastic job all through this hearing with sometimes a challenging transcript of the various witness that were called to the stand.

And because this was a public hearing, I want to particularly thank the members of the press, who are obviously in the other room and some of them are in this room, who have been extremely respectful of the Panel, of the process. We had a concern initially with the possible disruptions of the process. And those have not materialized in one single event that I can recall. And I would like to pay particular tribute to them for having respect of that and for having chronicled this hearing in a way that I think was objective throughout.

So thank you to everyone. As I said previously, this hearing is adjourned, and we will be in contact another day.

(Recessed at 5:30 p.m.)

REPORTER'S CERTIFICATE

I, DEBRA K. RESLING, RMR and Certified Realtime Reporter, appointed to take the within arbitration do certify that before the hearing the witnesses were duly sworn by me to testify to the truth; that the hearing was taken by me at Pepperdine University, Department of Law, Malibu, California from May 13 - May 23, 2007, then reduced to typewritten form consisting of 2084 pages herein; that the foregoing is a true transcript of the questions asked, testimony given and proceedings had.

I further certify that I am not related to any party herein or their Counsel, and have no interest in the result of this litigation.

In witness hereof I have hereunto set my hand this 11th day of June, 2007.

____
Debra K. Resling, CSR, CRR
Registered Merit Reporter
and Notary Public.

4 Cheyenne Boulevard
Colorado Springs, CO 80906

My commission expires February 28, 2009